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THE

DENTAL REGISTER,

EDITED BY J. TAFT AND GEO. WATT.

VOLUME XXV.

PUBLISHED MONTHLY.

CINCINNATI:
J. TAFT, PUBLISHER, 117 WEST FOURTH STREET.
1871.

INDEX TO VOLUME XXV.

Address ---------- 18
A New Preparation of Cotton for Stanching Hemorrhage ---------- 37
Antimonoid ---------- 38
A Legion of Leeches ---------- 42
An Itemized Bill ---------- 47
Ability vs. Compensation ---------- 108
Are the Mineral Acids Formed in the Mouth? ---------- 111
Associative Effort ---------- 114
A Peculiar Case ---------- 117
A Cure for Love Melancholy ---------- 118
A Reversion Spectroscope ---------- 139
A War Victim ---------- 139
Address to the Graduating Class ----------143, 243
Advantage of Clinics ---------- 160
A Lapse ---------- 186
Alleged Cause of Death from Nitrous Oxyd ---------- 224
Are the Mineral Acids Formed in the Mouth? ---------- 413
American Dental Association ---------- 411
Address before the Alumni Association ---------- 264
A New Impression Cup ---------- 272
A Pumice Polisher ---------- 273

Address read before the Northern Ohio Dental Association 301
A Case in Practice 304
A New Experience 350
Atrophy of the Teeth 352
American Dental Association 411
A Case, and its Perplexities 461
Annual Meeting of the Lake Erie Dental Association 466
Anæsthesia 511
Are We Progressing? 514
Bee Stings 38
Bone Phosphate 49
Boston Society of Medical Sciences 86
California State Dental Association 361
Crude Teachings 406
Change and Removal 453
Correspondence 453
Corns on the Feet 48
Chemical Nature of Malaria 501
Change Editorial 543
Close of the Volume 543
Dental Hygiene 57
Deaths from Chloroform 91
Discussions of the 27th Meeting of Miss. Valley Dental Society 163
Dental Education 199, 235, 454
Death of a Noted Southern Physician 234
Demonstrations vs. Lectures 253
Dental Physiology 281
Dental Organization in Kansas 321
Dental Jottings 333, 457
Dental Ethics 341, 391, 427
Dentistry vs. Money 379
Dentigerous Cysts 532

Disease of the Antrum ---- 540
Eau de Beaule de M Bargasse ---- 92
Eighth District Society of New York ---- 275
Educational ---- 276
Examination ---- 407
Extracts from Proceedings of the Forest City Society of Dental Surgeons ---- 409
Eastern Ohio Dental Association ---- 497
East Tennessee Dental Association ---- 529
Eastern Indiana Dental Society ---- 531
Fifth Annual Meeting of the Ohio Dental Society ---- 64
First Dentition ---- 189
Filling Teeth ---- 236
First District Dental Society of the State of New York ---- 521
Gas vs. Chloroform ---- 106
How Not to Do It ---- 94
Hygienic Treatment of Disease ---- 90
How to Spell and Pronounce Aluminium ---- 514
Irregular Dentition ---- 39
Immobility of the Jaws ---- 45
Investigations of the Tooth Pulp ---- 97
Influence of Diet on the Composition of Bone ---- 118
In Memoriam—Dr. J. G. Willis ---- 280
Insanity in Woman ---- 323
Indications for Extraction of the Teeth ---- 325
Is it a Third Tooth, or the Development of the Long Dormant Pulp of a Second Molar? ---- 463
Kentucky State Dental Society ---- 544
Loss of Speech After Chloroform ---- 38
Lancing the Gums ---- 134
Little Things ---- 182
Meetings ---- 51

Minutes of the Fifth Annual Meeting of the Ohio State Dental Society, Columbus, Ohio 122
Medical Education 130
Mistaken Impressions on Nitrous Oxyd 110
Mechanical Dentistry 154
Mississippi Valley Dental Society 183
May Fillings be Made Too Dense? 247
Minutes of the Wabash Valley Dental Association 260
Minutes of the 13th Annual Indiana State Dental Association 394
Mad River Dental Society 452
Material Supplies for Our Profession 500
Neuralgia of the Jaw Bones 41
Neuralgic Pill 47
Nervous System 53
New Jersey State Dental Society 119
Note on the Physiological Effects of Carbonic Oxide 180
Nitrous Oxyd Rumors 232
Northern Ohio Dental Association 311
Necrosis of the Lower Jaws 335
Ohio State Dental Society—Discussions 22
Oxygen Gas Prepared at the Ordinary Temperature 47
Office Notes 61, 104, 252
Offensive Breath 132
Obituaries 188
Oxychloride of Zinc Treatment of Dental Pulps 256
Oblivious 360
Oxygen in its Relationship to the Vital Phenomena 369
Obituary 412
Operative Dentistry—or, Filling Teeth 437
Physiology of the Pancreatic Secretion 36
Parchment Paper 48
Preservation of Anatomical Specimens 88

Proceedings of Societies 64, 119, 163, 226, 260, 311, 361, 394, 444, 466, 516
Professional Responsibility 93
Pneumatic Engine 95
Puffery 105
Phosphate of Lime 186, 250
Proceedings of the 27th Annual Meeting of the Mississippi Valley Dental Society 226
Preservation of the Cadaver 229
Professional Fidelity 290
Phrenology and Dentistry 295
Professor Tyndall on the Chemistry of Light—New Experiments and Conclusions 306
Proceedings of the Wisconsin State Dental Society 444
Proceedings of the Kansas State Dental Society 484
Proceedings of the Michigan Central Dental Association 491
Proceedings of the Brooklyn Dental Society 528
Proceedings of the Tennessee Dental Society 530
Selections 34, 86, 118, 179, 264
Selections from a Clinical Lecture on Tumors 34
Simple Method of Arresting Obstinate Epistaxis 38
Skin Grafting 44
Speaking and Singing Without a Tongue 91
Splitting Teeth with the Mallet 116
Styptic Wool 137
Surgery that is Surgery 320
Southern Dental Association 497
State Society 499
Second Annual Meeting of the New Jersey State Dental Society 516
Thoughts on Respiration 9
Tic Doloreux Cured by Galvanism 40
Table of Societies 51
The Forthcoming Volume 50

The Philosophy of Chills and Fever 138
The Discrimination between Syphilis and Scrofula 138
Two Very Perplexing Cases 158
Things Old and New 161
The Microscope in Medicine 179
The Production of Asthenia or Anæsthesia in Surgical Operations by Compression of the Vagus Nerves 181
The Treatment of Suppurating Glands of the Neck 187
To the Point 234
The Mad River Dental Society 272
The Northern Ohio Dental Association 273
The Hot Air Syringe 274
The Law 279
The Physiology of Thought 319
The Pneumatic Engine Improvement 822
The Brooklyn Dental Society 452
The Chicago Fire 454
The State Board of Dental Examiners 499
The Ohio State Dental Society 542
Watt's Elevator—A Misnomer 184
When Philosophers Differ 368
Vital Phenomena 214

THE
DENTAL REGISTER.

Vol. XXV.] JANUARY, 1871. [No. 1.

Communications.

THOUGHTS ON RESPIRATION.

BY GEO. WATT.

Read before the Ohio State Dental Society.

The chief objects of breathing are to get oxygen into the blood, and to get oxydized matter out of it. We are far too apt to overlook the latter, or to regard it as of minor importance.

The atmosphere is a mixture of nitrogen, oxygen and carbonic acid. Other gases and vapors are ordinarily mixed with it, but are not essential to it. Nitrogen is the most abundant, while oxygen is regarded as the most important of the three. In speaking of respiration it has been common to refer to nitrogen as merely diluting the oxygen; and the results of breathing unmixed oxygen are referred to as confirmatory, inasmuch as the vital functions are thereby overstimulated. But that this view is incorrect is evident on a slight consideration. If the nitrogen of the atmosphere were blotted out of existence, its oxygen would continue to occupy the same space that it now does, and the expansion of the chest would result in the inhalation of the same quantity of oxygen as when the nitrogen is present. But the muscles of respiration in expanding the chest would in that case be aided by only about three pounds to the square inch, instead of fifteen as with the present atmosphere.

By respiration, oxygen is conveyed to the air-cells of the lungs, and passes through the mucous membrane which lines them, to reach the blood; and carbonic acid escapes from the blood through the same membrane, and is carried away by the expiration. It is unfortunate that the terms endosmose and exosmose have been applied to this interchange of gases. If these had been reserved for use in referring to the passage of liquids through membranous tissue, our thoughts would have been clearer. The gases obey the laws of gaseous diffusion, just as they would, under the same physical conditions, out of the body. When a liquid charged with carbonic acid is placed in a cylinder, and pressure is made on it by a piece of membrane stretched like a drumhead over a hollow piston, the acid escapes through the membrane. In like manner, when the venous blood, charged with carbonic acid, reaches the lungs, and the chest is expanded by the respiratory muscles, the atmosphere, with its pressure of fifteen pounds to the inch, rushes in, extends the membrane to its utmost stretch, and yielding to the pressure, the gas passes through the membrane into the cavity of the air-cell. This is simply obedience to the law of gaseous diffusion.

The act of expiration by no means empties the air-cells. They are as full at its close as at the completion of the inspiration. The inhaled air has usually a temperature lower than that of the lungs. In reaching the equilibrium, it expands, and the pressure thus made facilitates the passage of oxygen into the blood. The oxygen is thus steadily making its ingress, while the carbonic acid passes outward mainly during the inspiration. In both there is merely obedience to the law of diffusion.

The oxygen having reached the blood, finds the red corpuscles ready to receive it, and having received it, these bodies are found of a florid color, whereas they were previously livid. The red corpuscles contain iron. It is found in no other tissue of the body. This is worthy of special note, in view of the behavior of iron and oxygen with each other. When 28 parts of iron unite with 8 of oxygen, the protoxyd of iron is formed. With this as a base, acids unite to form various salts of iron; but as a separate compound it is not permanent, being readily oxydized to a higher degree, that is till the 28 parts of iron are united with 12 parts of oxygen, when the compound is called the sesquioxyd (or peroxyd) of iron. Carbonic acid combines readily with the protoxyd of iron to form a carbonate; but with the sesquioxyd it does not unite. And further, if the carbonate of the protoxyd is exposed to oxygen, as in atmospheric air, it is decomposed, the protoxyd being converted into the sesquioxyd of iron, and the carbonic acid, unable to unite with it, escapes as a gas.

Let us start with the blood at the right ventricle of the heart. It is here livid, or venous blood. And, for the present, let us assume that the iron in the red globules is here in the form of the protoxyd and in combination with carbonic acid. The ventricle contracts, and drives the blood to the lungs. Here it meets with oxygen which changes the protoxyd to the sesquioxyd, and as the carbonic acid has no affinity for this, it resumes its gaseous form, and escapes into the air-cells, through the membrane, aided by the pressure incident to the inspiration. The blood thus changed returns to the heart, carrying sesquioxyd, instead of carbonate of iron, and is driven through the arterial system to reach the capillaries. Here the oxygen is given out by the corpuscles, the sesquioxyd is reduced to a protoxyd, carbonic acid, already formed by the oxydation of carbon, unites with it, and the blood is changed to a livid hue, and, under the name of venous blood, is carried by the veins to the right auricle, and thence passes to the right ventricle, to be driven to the lungs to unload the carbonic acid and receive a fresh supply of oxygen, as already described. With this view the change from arterial to venous blood and back again is not mysterious.

The reception of oxygen by the corpuscles, and their giving it out in the capillaries, have been accounted for, but the above does not account for all the oxygen carried by these bodies. They receive and carry more than is necessary to change their iron from a protoxyd to a sesquioxyd. For convenience, let us call this the oxygen of reserve, to distinguish it from that used in combining with the iron.

It will aid us now to consider briefly a few of the properties of oxygen, or, at least, to recognize its active and passive states. These may be better appreciated by using a more familiar element in illustration. Iron is ordinarily in its active state. In this state it acts energetically on nitric acid, depriving it of a part of its oxygen, that it may itself become oxydized. Any excess of the acid present then unites with the oxyd thus formed, the result being nitrate of iron. It is more common to speak of nitric acid acting on iron, but the above is the order of action. But if the iron be changed to its passive state, which is simply an electric change and may be effected in several ways, it may be introduced into nitric acid and be allowed to remain there, without the slightest chemical action taking place. Like iron, oxygen has its active and passive states. In a nascent condition, that is, when it is being liberated from a compound, it is always active. Electric sparks passing through it render it active, when it is usually called ozone. Much of the oxygen in the atmosphere is changed to ozone when there is great electric disturbance; and that is the reason our instruments rust at such times, in spite of our best attention. Now let it be granted that the oxygen of reserve is passive, and we can understand why its presence is not incompatible with the life of the corpuscle. Let it be active, and we can scarcely believe that the vitality of the corpuscle will be able to resist its affinity for the phosphorized fat contained therein. The variation of a half a degree in the oxydation of the iron is compatible with the life of the corpuscle; but it is probable that if the oxygen of reserve were to assert the affinity of an active state, death to the corpuscle would at once ensue.

The four elements, carbon, hydrogen, oxygen and nitrogen, are prominent constituents of living bodies. The oxygen used in building up the several tissues is probably all derived from the food, obeying the same laws of assimilation as the other elements. The oxygen introduced by respiration serves totally different purposes. By the oxydation of carbon, hydrogen, etc., heat is generated, as if these elements were burned out of the body. Not only is heat generated, but vital force is manifested as a result of similar oxydation; or, on the principle of the correlation of forces, chemical affinity is changed into vital force. Vital force is manifested in organic and animal life. Organic life is independent of the will, while voluntary motion, thought, etc., are manifestations of animal life. As a part of the oxygen received in respiration unites with the iron in the corpuscles, while in the lungs, and is given out again in the capillaries, and as this takes place with each round of the blood, asleep or awake, wholly independent of the will, it is probable that this oxygen imparts vital force for the organic or involuntary functions, while for voluntary efforts, whether muscular or mental, the supply is obtained from the oxygen of reserve. The only mystery in this is how the oxygen of reserve is rendered active, so as to assert its affinities on the proper materials and at the proper time to give the various manifestations of vital force in obedience to the will; but this is only another illustration of the power of spirit over matter, proving the truth of the Bible statement that man is created in the image of God who said "Let there be, and there was;" and after all, it is not more strange that oxygen should be rendered active by the will than by an electric spark.

Thus far respiration has been spoken of as if its results and phenomena were uniform and constant. They are so to the extent that oxygen is taken into the blood and carbonic acid is given out with each breath. But the amount of oxygen appropriated varies greatly with the circumstances; and the liberation of carbonic acid is subject to similar variation. Nor is it when the most oxygen is taken in that the most carbonic acid is given out. There is not much difference in the quantities of oxygen used by a man at work and a man idle; but the former gives off much greater amounts of carbonic acid and water than the latter. A man asleep appropriates oxygen far more rapidly than a man awake, even if engaged in brisk labor, but at the same time he gives off far less carbonic acid and water. Awake, he appropriates oxygen enough to carry on the organic functions, that is, to sesquioxydize the iron; asleep, he lays in the oxygen of reserve, to fit him for voluntary labor and thought. The object of sleep, and its importance, are thus clearly and practically apparent.

Sleep is not the only thing requisite to the accumulation of the oxygen of reserve. The assimilation of nitrogenous food seems to be necessary. At any rate, sleep is less refreshing after a free indulgence in carbonaceous food; and when it has been demonstrated that less oxygen is appropriated in such sleep, than in sleep after partaking of food rich in nitrogen, we can understand why lean meats, oysters, fish, fowls, etc., are popularly indulged in at late suppers. And if a lack of nitrogen in the food undergoing assimilation during sleep prevents the accumulation of the normal amount of oxygen of reserve, or renders the corpuscles unfit to hold it in its passive state, they will be found all the more ready to yield what they have, producing a restless irritability incident to a constitution unrefreshed by slumber. And since this discovery has been made, we are not surprised to find "vegetarians" wakeful in the hours devoted to sleep, falling asleep in the midst of conversation, purposing everything but persisting in nothing, gradually becoming more stable as their instincts or judgments cause them to indulge freely in such vegetables as are rich in nitrogen.

From the above it follows that our voluntary exertions are sustained by oxygen laid in during previous sleep; hence when our breathing is quickened by active exercise the increased quickness is not to get more oxygen into the blood, but to get carbonic acid out of it.

It is worthy of notice that, in normal breathing, the expiration occupies much less time than the inspiration. This sudden ejection seems necessary to prevent the reabsorption or rather return of a portion of the carbonic acid into the blood, hence when there is dilatation of the air-cells, spasmodic asthma, or any cause retarding the expiration, the patient suffers as if breathing an atmosphere overcharged with carbonic acid. A common, and a very serious fault in administering anæsthetics, is a neglect to permit the utmost freedom of expiration. This remark applies alike to the use of nitrous oxyd and chloroform. When the expiration is perfectly free, delirium seldom results from the use of either.

With these principles kept in view, we can readily understand the action of a number of poisonous gases when inhaled. Hydrosulphuric acid, sometimes called sulphuretted hydrogen, will serve for an illustration. When this gas is breathed, the red corpuscles are darkened; and are not restored to their florid hue by oxygen, as they are when darkened by carbonic acid. When this gas and an oxyd of iron are in contact, double decomposition takes place, resulting in the formation of sulphide of iron and water. No one would expect iron in this state either to carry oxygen or to give it out in the capillaries. To the extent of this combination, the corpuscle permanently loses its functions, or in other words, dies.

Binoxyd of nitrogen, or nitric oxyd, is another highly poisonous gas. Like the preceding, it can not be inspired when undiluted, but mixed with atmospheric air, or other supporter of respiration, it may be inhaled in injurious quantities. This gas is characterized by an exceedingly strong affinity for oxygen. It is thus able to deoxydize many of the metals. When by inspiration it is brought in contact with the corpuscles, it can scarcely fail to deoxydize the iron, at least to a partial extent; and if it is able to reduce the sesquioxyd to a protoxyd, the blood is no longer arterial, and to the extent of this reduction, is unable to support the functions of organic life. By taking oxygen, this gas becomes an acid, and is, therefore, ready to unite with the oxyd of iron to form a salt. This is the gas most likely to contaminate nitrous oxyd, and is usually the cause of the darkening of the complexion, so often described in the books, and far too frequently seen. Nor does it await its arrival in the blood before it begins to undergo farther oxydation. In contact with free oxygen it is almost instantly changed to nitrous acid, and in the presence of watery vapor, almost as rapidly from nitrous to nitric acid. Much of it is thus changed to nitric acid in the air-cells of the lungs, and by its corrosive action on the mucous membrane, it renders it unfit for its special office, and the transfusion of gases through it does not take place with sufficient freedom. In this way the function of respiration is often badly damaged for days and weeks, after the use of impure nitrous oxyd. It is unfortunate that this poisonous gas is as likely to be obtained from pure as from impure nitrate of ammonia. For a more specific notice of this gas and its reactions, the reader is referred to Watt's Chemical Essays.

Defective respiration produces its deleterious results in various ways. If the supply of oxygen is so deficient in quantity that it fails to sesquioxydize the iron, of course the carbonic acid is not liberated; and if the iron, thus unchanged, passes to the left side of the heart, then blood, partially venous, will circulate in the arteries, and to the extent of this, the corpuscles are unable to carry the oxygen for the supply of force to the organic functions. And in this abnormal state, they seem to be equally unable to take up and retain the oxygen of reserve for the support of the voluntary functions. We forget, too, that although carbonic acid is the sole result of the complete oxydation of carbon, and water the ordinary result of the oxydation of hydrogen, yet, if the supply of oxygen be defective, many other compounds may result from the oxydation of these elements. In the body, as out of it, the partial oxydation of carbon forms carbonic oxyd, instead of carbonic acid. This oxyd, as is well known, is a deadly poison, when inspired. And when its *modus operandi* is clearly understood, we can readily recognize that, if formed in the blood, it is not less poisonous, than when it reaches it by inspiration. This gas is also characterized by a strong affinity for oxygen. If brought in contact with the red corpuscles in the arterial blood, it may take oxygen from the iron, reducing the sesquioxyd to the protoxyd, while by the oxygen thus received it is converted into carbonic acid, and will unite with the protoxyd to form carbonate of iron, and to the extent of this change, venous blood is formed in the arteries. The iron, having already given its half equivalent of oxygen to the carbonic oxyd, can not give it out in the capillaries, to supply vital force to the organic functions.

But instead of taking oxygen from the iron, or even while doing so, carbonic acid may combine with the oxygen of reserve, and to the extent of this, is the vital power of the voluntary functions lessened. This readily explains the sense of extreme prostration experienced in badly ventilated rooms, in prolonged paroxysms of asthma, or when, from any cause, the function of respiration is seriously defective.

If what is here written aids us in understanding better than before the important function of respiration, the object of the writer will be gained. To dentists the subject is a practical one. Our specialty originated practical anæsthesia, and to a great extent is guiding the investigations necessary for its further development. As general anæsthetics are administered by inhalation, correct ideas of respiration seem essential to their proper use. If apology were necessary, for not reading something more nearly related to every day practice, I would remind you that it would not be modest for me to discuss the details of a practice which has made so much progress since I abandoned it. Presuming that respiration is mainly carried on in the old way, I felt safer in selecting it, and have written this in obedience to your appointment.

ADDRESS

BY F. H. REHWINKLE, PRESIDENT.

Delivered before the Ohio State Dental Society.

Gentlemen of the Ohio State Dental Society:—In offering the following remarks at the present time, instead of at the close of my official term, I deviate from the usual custom—but follow in the footsteps of my immediate predecessor, upon reflection, concurring with him in the opinion that any suggestions or statements concerning the general interest and welfare of our profession, are perhaps better timed at the opening, than at the close of our session.

In reviewing the past year, it is gratifying to feel and know that the condition of Dentistry in this State, is in the main highly satisfactory as regards the general spirit of onward and upward endeavor. A commendable emulation manifests itself, even in quarters least expected. A general effort and determination to advance and improve is visible, and encourages the hope that with judicious action on the part of this body, the good work of regenerating the profession from the somewhat demoralized state of former years, may finally be accomplished.

In addition to the regular order of business, of which an excellent programme has been presented to you by your executive committee, I would invite your attention to some other items which, in my opinion merit your serious consideration.

In the first place, would it not be eminently proper to unite your efforts with those of other societies, memorializing Congress for the appointment of competent Dental Surgeons to both Army and Navy?

The want of general information among the people at large, as regards the anatomy and physiology of the teeth, their development, time, and order of irruption, etc., induces me to respectfully suggest to you the duty of laying this matter before the State Board of Education. inducing them by facts and arguments to add to the text books of our common schools, a short and comprehensive chapter on this subject, together with the duty and importance of preserving the teeth, and the best means of attaining that end. The benefit of this to the rising generation would be almost incalculable. Let me, therefore hope the subject will meet with a due share of attention.

The gross carelessness (and in some cases ignorance) of some of the medical practitioners in regard to the influences which certain conditions of the system have upon the fluids of the mouth, and subsequently their effects upon the teeth; also the utter indifference as to the best means of counteracting injurious influences, would seem to make this a proper subject for your consideration. Would it not be well to present a memorial to the medical profession, calling attention to the following subjects and entreating its hearty co-operation:

1. That more general attention be paid to the mouth and teeth of their female patients during the period of gestation, and, by the timely correction of acidulated and viscid fluids of the buccal cavity, preventing in a great measure the rapid decay to which the teeth during this period are especially liable.

2. That advice be given to the nursing mother in regard to her diet, so that a proper and sufficient amount of bone-making material may be secured to the offspring.

Last. That in all cases where acids, or *tonics combined with acids* are prescribed, though they may be taken through quills or glass tubes, shall be preceded and followed by alkalies, used as mouth washes.

You may feel that this is a delicate subject, and our cousins of the medical profession may possibly think it presumptous to offer any suggestions, nevertheless, we must not by this, be deterred from doing what might be the means of accomplishing much good. Those of the medical gentlemen to whom these suggestions are entirely superfluous, know too well that there are many, very many practitioners in their ranks, to whom the foregoing hints and suggestions are altogether apropos.

Thus far, the compliance with the provisions of the law regulating the practice of Dentistry in the State of Ohio, has not equaled the expectations of its upholders; and whilst it is to be regretted that the contemplated proviso was stricken out by the Committees of both Houses of the Legislature, an attempt to change the law itself would be precarious and ill-timed; but the condition of things as they now are, seems to call for some action on your part, to disarm all opposition to this law, which possibly might be made by those whose time of grace is fast expiring. Would it not be an advantage in this connection if some plan were devised by which the Board of Examiners should be enabled to hold its sessions in different localities of the State, offering all possible facilities for those who have heretofore found the distance to Columbus or Cincinnati too great? I have not yet heard of any prosecutions for violations of this law. As it now stands, it is the implied duty of every member to prosecute; but, "what is everybody's business is nobody's business," therefore it would seem to suggest itself as desirable, that you should create a special committee, with an advisory member from each Congressional District, to gather the names of parties who will be affected by said law, or who have already violated it, together with the facts in the cases, and to proceed to enforce the law. Should this not seem advisable, to adopt other measures which, in your opinion will accomplish the same end.

The relations of the profession to the "Goodyear Dental Vulcanite Company" are in all respects unaltered, and with no prospect of a change until May, 1872, when the extension of the Goodyear patent expires and when the Cummings patent will have to stand upon its own merits. I feel it my duty to call to your mind the united efforts made to defeat the exorbitant demands of the Boston monopoly. Many of our brethren were discouraged and seemed to think that the "Dental Vul. Co., of Boston," had been but too successful in the struggle; please bear in mind that the profession of the West and North-west, did not in reality, contest the validity of the "Goodyear patent," but that the Cummings patent was the real point at issue. Had it not been for the Weatherby case in Boston, the question as to the validity of the Goodyear patent, would in all probability never have been contested, and that, as to the validity of the Cummings patent might and would probably have remained in abeyance until the expiration of the Goodyear patent; but inasmuch as the District Court of Massachusetts, with one of the Supreme Judges on the bench, allowed a hearing and rendered a judgment on the two patents combined, it became imperatively necessary to contest the Cummings patent at once, and as long as it was wrapped up in the Goodyear parchment, this had to be unfolded to get at the Bacon rind. You are aware that since that time, no U. S. Judge has allowed a heraing upon the merits of the Cummings patent; Judge Nelson, of New York, declared "he knew nothing of the Cummings patent," and declined to hear arguments upon it in connection with the Goodyear patent. All judicial decisions and judgments, except in the case already cited, are solely on the validity of the Goodyear patent.

Whatever our individual opinion may be as to the merits or demerits of vulcanized rubber as a base for artificial teeth, the State Society as a body, owes to its members to make common cause in the coming fight. There is not the slightest doubt in the minds of those who are well informed upon the subject, of the invalidity of the Cummings patent. Take, therefore, steps in time—again effect an organization, retain counsel, and be prepared for the contest.

Finally, gentlemen, let me entreat you to extend to each other every courtesy in debate; speak to the point on subjects under discussion, bearing in mind that time is valuable and that a great deal of business requires your consideration. Thanking you, gentlemen, for your kind and patient attention, please accept the honest wish of my heart that the most perfect harmony may prevail among us, and that the prosperity and usefulness of this Society may increase day by day and year by year.

OHIO STATE DENTAL SOCIETY—DISCUSSIONS.

Dr. L. Buffett, of Cleveland, offered the following resolution:

Resolved, That no one shall be eligible to membership in this Society unless he have a diploma from some reputable Dental College, or a certificate from the State Board of Examiners.

Dr. W. M. Herriott thought the resolution unnecessary. A committee, composed of Drs. Decamp, Rehwinkle, and Smith, had been appointed by the Society, and after having the matter under consideration for a year had not recommended any change. He also thought the matter need not be brought up at this early stage of the meeting, to waste time in discussion. If at the close it was thought best, such a resolution could be passed to govern action next year.

Dr. Buffett thought the report of the committee referred to had no bearing on the case.

Dr. B. T. Spellman favored the resolution. Dr. Buffett, who offered it, had been one of the committee of last year. The action of that committee he thought, did not bind this body. Bodies bind committees, committees never bind bodies. The committee failed to make a report. It is competent for the Society to make the rules that the committee failed to make. It becomes imperatively necessary to have something of this kind. Here the old members who have been in the Association for years, are called upon every year to pay the expenses of the State Board, while the very men who should sustain it are not doing so, but are getting the credit all the same. The resolution he thought, ought to have been adopted before this time.

The limited time given to the Committee on Membership made it impossible for them to make such an examination as they should. They come up here to attend to other matters of great importance, and because of the little time the committee have, these candidates are admitted without much examination. It would be humiliating if, after they are admitted, they should fail when they go before the State Board. They should go before this Board first, and then the committee would not need to examine them on the same points.

Dr. Harroun expressed himself in favor of the resolution. If persons are admitted into this Society before it was known whether they were qualified or not, or before the State Board knows it, it seemed to him a lame kind of proceeding. It is no more than right that they should be previously examined by the State Board. They ought to feel that this is a duty they owe to themselves and to the people of the State.

Dr. Buffett being called to the chair, Dr. Rehwinkle said that the duties of the Committee on Membership was, to a great extent, confined to the qualifications of members, but they could go far beyond that. A man may be a dentist in Ohio or the United States, well qualified for his profession, yet may be utterly unfit to be a member of this Society. His private character may be such that none of us would tolerate him at our meetings; therefore the functions of the

Committee on Membership are different from those of the Board of Examiners, which merely has to do with a man's professional qualifications.

A strong reason why members who are not qualified should not be admitted to membership is this: if a man is received and remains a member in good standing until the expiration of his probation, which will be in 1872, and should then fail to pass the Board of Examiners and be prosecuted, it could be said to us, that two or three years ago we admitted him to membership in the Society, but now say he is not qualified. By admitting him to membership we acknowledge that he is our equal.

Dr. Herriott thought as the Society knew what his opinion was with regard to the law as it now exists, and of the proper status of a man who would practice dentistry, it was not necessary for him to make any explanations in regard to the qualifications that should be possessed by those entering the profession. But he did not believe it to be the object of the Society merely to have those who have a certificate from the State Board to meet together and exclude all others. He thought it should be their object to *educate* the profession, and to bring up those not so well qualified, to the point to which the best members aspired. They should have the sympathy and assistance of the older and better qualified members of the Society.

Dr. Watt was in favor of all the societies in the State, except the Ohio State Dental Society, doing exactly what Dr. Herriott recommended. The Mississippi Valley Dental Society, or the Central Society might take rising men and fit them to receive a diploma from the State, but the *State* Society stands in a different relation. That Society elects the State Board. "Now suppose," said he, "that in our infinite mercy we admit every young man that comes along whom we believe to be honest and upright, and that just before 1872, they begin to think it is about the time the screws are going to be turned upon them and they go to work and elect a merciful Board—and they would be just as sure to pick on him as Chairman of that Board, as could be." [Laughter.] By electing such a Board, all could pass it whether qualified for the profession or not. The State Society is responsible for the action of the Board; or in other words, it is responsible for the execution of that law. He believed it to be suicidal to receive into the Society those who have ceased to be lawful practitioners, or who fail to pass the State Board.

Dr. G. W. Keely, of Oxford, thought it not best to rush this matter through in too much haste. He liked the doctrine of his friend the Secretary, but still, he thought they would, perhaps, have to come to the point contemplated in the resolution. That all might have further time to consider the matter, he moved that the subject be postponed until 2 P. M., the next day. The motion was carried.

"THOUGHTS ON RESPIRATION."

After Dr. Watt had read a paper* upon the above subject, Dr. J. Taft said there was one point upon which he would like to make an inquiry; that was the point at which the evolution of force takes place. He supposed it to be at the time and place that the change is made in the tissue and the change made in the blood, but he would like to know something further about the evolution of life forces, and how far it is modified by this mutation of material.

Dr. Watt in reply, said he supposed there never was a man passing through a beautiful country that went so far that he did not want to go farther; he then made some explanation of the principles contained in the paper. He did not believe, in this state of existence, the mind could be exercised without producing a physical change, or a chemical change in the tissue of the brain. Some day, perhaps, the chemist would be able to determine to some extent, the varied operations of the mind by an analysis of the resulting materials. If a man has been engaged in vigorous thought, it can now be detected by the large amount of phosphates in his urine. The spirit working through the brain causes the change of force to take place, resulting in voluntary action. It was claimed by some that thought is the result of organization, but he believed that the reverse was true, and that organization is the result of thought. Give a spirit matter, and that spirit will make itself a body if it needs one. That is the tendency—if that spirit has sufficient spiritual force to control this matter. The Great Spirit of all had such force of spirit and spoke bodies into existence.

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* See original department.

As an illustration of the superiority of spirit over matter, he related the following: A woman had been in ill health and for years was confined to her bed, suffering a great deal. She had become very feeble, and breathed with difficulty. The house took fire and the children were about to be burned. The fire had originated in a closet under the stairway, and the children were up stairs. That mother, however, did not allow her children to burn to death because the stairway was on fire. She got up from her bed, took hold of the bureau, and calling her husband, assisted in carrying it out and placing it beneath a window, and requesting her husband to get upon it, she procured a chair which he placed upon it and getting upon that he was enabled to rescue the children. In this case there was not much of the oxygen of reserve spoken of in the paper, but the aroused will controlled and used the needed supply.

He remarked that there was nothing peculiar in the oxygen in the blood. We have the two conditions, active and passive, the same that exists everywhere, and this element behaves in precisely the same manner in the body as it does out of it.

Dr. Spellman said that he understood the paper to assert that the oxygen that enters into the combinations that compose the animal tissue is derived entirely from the food. He inquired if the oxygen of the atmosphere did not contribute to the production of animal tissue.

Dr. Watt replied that animal life could not be sustained without food containing these four elements, oxygen, nitrogen, carbon, and hydrogen. These four elements are all combined in the food. This is the organic compound. Though the air contains three of these elements, the oxygen which reaches the blood by respiration is not combined with these other elements, but is oxygen free, and instead of uniting with the other oxygen, which is a part of the organic compound, its tendency would be to dispute with it the possession of these other elements. In other words the oxygen that is taken in with the food and is assimilated, passes through in combination with the other elements, and results in the formation of an organic compound; but the oxygen received by respiration is oxygen free, whether it is active or passive, and being free it is ready to combine with anything that is oxydizable, and especially with the protoxyd of iron. Then, the remainder of the oxygen not necessary to sesqui-oxydize that iron, passes on, ready whenever rendered active, to combine with oxydizable matter.

Dr. Spellman asked if it is a physiological fact that there is an excess of oxygen in the blood vessels, going along there hoping it may be taken up by some mishap that may occur?

Dr. Watt replied: No, not hoping for anything of the kind. But it is going along there ready to obey the will. It is a physiological fact, only demonstrated within the last few years by a number of experiments, that oxygen is taken in, in greater quantity in sleep, than when we are working actively, and that we give out a great deal more oxygen than we take in during the day; the best we can do when awake is to take in enough oxygen to carry on the involuntary operations of the system, so it is necessary to sleep in order to lay in the supply required. We have been trying to teach that doctrine theoretically for a dozen years, but it has only been practically demonstrated recently.

EVENING SESSION.

"DISEASES OF THE ANTRUM."

Dr. Buffett said that most of the diseases referred to seldom fall into the hands of dentists for treatment. A majority of the cases coming under their care is an inflamed condition of this membrane, which arises from disease or laceration of the periosteum. The antrum is subject to all those conditions which affect cavities lined with the mucous membrane. In relation to the treatment, he would say that if it was an inflamed condition he would remove the cause; sometimes this may require the removal of the tooth, sometimes saving the tooth.

Dr. Herriott agreed with Dr. Buffett that few cases, comparatively, of this disease comes under our care, yet when a case does come, we should be able to treat it properly. He mentioned a couple of cases he had treated for this disease. In the first case where the first bi-cuspid tooth had penetrated the cavity of the antrum, he endeavored first to treat the case, without removing the tooth, but finally removed it and treated with chlorid of zinc as strong as the patient could bear it; afterwards only Port wine was used, and then simply syringed with water. He would never treat a case of diseased antrum unless the patient could come to his office and allow him to use the remedies he desired. He had treated the case referred to about four weeks when the patient was dismissed. This had been some eighteen months or two years since and the cure was permanent.

The other case treated was caused by one of those fellows who travel through the country with a carpet-sack. He had endeavored to extract the outside roots of the second molar tooth, and instead of forcing the forceps alongside, had forced the root up into the cavity where it remained a year and a half. The patient had come to him and finding this piece of a tooth he removed it. The roots were joined together and in endeavoring to remove them he found considerable difficulty, as the orifice was not sufficiently large. The patient not being willing to take chloroform at his office, he had to go some distance in the country to perform the operation. He treated the case a little differently from the other, using carbolic acid in the place of chloride of zinc, and afterwards Port wine, and finally used nothing but water. It had been about a year since he treated the case, and it was apparently well.

Dr. Butler referred to a case spoken of by Dr. Jennings. He considered it somewhat complicated, and would term it maxillary abscess connected with diseased antrum. It had been over a year's standing before it came under observation. The general condition of the patient was bad; his vital power low and he was thin in flesh. The case had come under Dr. Jenning's notice, and he by request, had examined it. He understood that the case had under Dr. Jenning's treatment culminated in a cure.

Dr. Herriott inquired what the treatment was.

Dr. Jennings by request, stated that the treatment consisted simply in washing it with a weak solution of sulphate of zinc every day for two weeks, after that about once a week, and then a very weak solution of Port wine.

Dr. Watt thought it better to get at *general principles* than to cite individual cases. The latter was too much like going by a family receipt book. The treatment which was efficient in one case might do no good in another. If general principles could be arrived at and classified, they might have something to guide them. He extended his remarks to considerable length in suggesting some of the ways in which this generalization and classification might be accomplished.

Dr. J. Taft said there are a great variety of affections of this cavity. Taking into account the influences that would operate upon them, and tend to modify them, there would necessarily be a very great variety of affections of this kind. Even if all systems were alike, and the physiological and pathological conditions the same, still there would be considerable room for diversity; but since there is a very great variety of physiological conditions, and perhaps a still greater variety of pathological conditions, he was led to the conclusion that there was probably as great a variety of these affections as could be found anywhere else in the body. There may be simply an inflamed condition of this cavity manifesting itself in the various forms referred to, in which the producing cause may have been entirely local, and this may run along through different stages to that of a chronic condition, and may maintain that condition for an indefinite length of time; then again it may be brought under the influence of some further disturbing causes and go on to some more aggravated form of disease, and may take on the most violent or malignant character of disease of which human tissue is susceptible, and all character of grades between these extremes may exist either from local causes alone, or it may be, influenced greatly by systematic conditions—unfavorable conditions in the system. All these conditions and variations are so fully explained in medical works that they need not be discussed at our meetings, but must be made a matter of special study.

They should understand, that if the difficulty is an inflammation of the mucous membrane of the mouth, it takes on the nature of the same disease in mucous membranes elsewhere.

In other cases there may be a hypertrophied condition of the parts, so that they will be many times their normal thickness, and will require a different treatment from a mere chronic condition. In all such cases the dentist should be able to know the conditions, the tendencies, and the influences that will probably be operative in the case. Every dentist ought to understand the character of tumors on the gums or alveolus and know enough to ascertain whether they are benign or malignant, and, when necessary, be able to remove them as readily as the surgeon.

Dr. Decamp stated a case of a lady about forty-five years of age. Nearly all the teeth in the upper maxillary were decayed Upon examination he found a lump growing down inside of the cheek half as large as a hen's egg. It had been over a year growing. He took out he supposed, two table-spoonfuls of bloody matter, about the color of dark coagulated blood. The outer plate of the bone was entirely necrosed. All the treatment he gave was to syringe, in the first place, with diluted phenol. At the second sitting he removed all the necrosis of the bone he could, and continued the treatment with phenol diluted, which he laid on some cloth in the opening. After some time he extracted the remainder of the roots. The lady had been wearing an artificial plate for six or seven years.

Dr. Rehwinkle agreed with Dr. Taft that it was important for them to be able to diagnose properly in such cases as had been referred to. Even if dentists are not called upon to perform operations of that kind, it would be of incalculable benefit to them and their patients if they could promptly give an intelligent opinion about such cases, and to be able to determine whether diseases of that cavity are harmless, or whether they are likely to assume a malignant character. He then related a case where a lady some years since had him extract a tooth; in a couple of days she returned to the office with quite a violent hemorrhage from the cavity. He arrested the hemorrhage promptly with a moderate-sized ball of cotton, saturated with either chloride or sulphate of zinc, he did not remember which. He succeeded in driving it home, but being forced through the opening in the antrum he had a nice time in fishing it out, and as it came out by piece meal, he could not tell whether he had got it all out or not. He then rinsed out the cavity—it bleeding freely all the time—and succeeded by taking a larger amount of cotton, which he pressed into the bottom of the cavity, then taking more cotton and saturating it with persulphate of iron, and spreading it over and tying the jaws together to produce a pressure, he arrested the hemorrhage. In two or three days the patient returned, and he found that suppuration had begun. He noticed the case with a good deal of interest and watched continually for the cotton. It finally forced its way through the opening, clotted in a lump by the mucus, and that ended the trouble, the wound healing up rapidly.

In regard to the influence of malaria, touched upon by Dr. Taft, he said it seemed almost incredible. Such was its influence in his locality that a person could not have the toothache without its coming on at regular periods, and partaking of the nature of intermittent fever. A thorough study of the subject of such influences should be made by all, and especially by the younger members of the Society.

Dr. Taft remarked that the variation which is found in different localities would account, to a considerable extent, for the variation in cases so often presented by members of the profession. One will speak very positively about certain things in his experience, which another says can not be, because it never happened with him; but if all the facts were known, perhaps no two districts are affected alike in every respect. These influences all make their impress upon us. He remembered that in a certain district in Greene county there was a great amount of malaria. All the patients coming from that district gave a great deal of trouble, because of its influence, while others from other parts of the county gave no such trouble. This fact was so marked that he could not help noticing it.

Dr. T. A Reamy, M. D., of Zanesville, being present was requested to address the meeting. He expressed himself as deeply interested in the discussions, and thanked the Society for the invitation to address them. He was glad to see the improvement made in the profession from year to year, and rejoiced in their advancement and prosperity.

Dentists would have to understand this subject of malaria, and the physiology of the entire system. They had trenched further and further upon the medical profession, and before the close of the nineteenth century a doctor of dentistry would have to be an excellent therapeutist, and must be a well educated man, or he would not be considered a good dentist.

He concluded with a few remarks upon the subject of malaria, which they had been discussing. This subject had ever been a mixed problem. It was not confined to low or damp localities alone, but was often prevalent upon lofty hills, while the inhabitants of lower districts and those living near water courses would be exempt. Philosophers and physicians had theorized upon it from time immemorial; yet it was an unsolved problem still. That it had a wonderful power all must admit, but it was like the power of the devil, its *influences* only could be seen as it went about continually seeking whom it might devour.

Dr. Watt was gratified to hear a prominent physician acknowledge the progress of the dental profession, and pleased to hear him express the belief that before the close of the present century, any one who would be a reputable dentist must be a man well educated in general medical science; he simply desired to make the doctor more glad by stating a fact that many did not know; that is, that there is but one college in Cincinnati that required two courses in practical anatomy in order to receive a degree, and that one is the Ohio College of Dental Surgery.

Selections.

SELECTIONS FROM A CLINICAL LECTURE ON TUMORS.

BY PROF. W. T. BRIGGS.

There is, probably, no class of disease of more interest to the practical surgeon than that of tumors. Their frequency, their variety, and their relations, render their consideration of the first importance.

John Hunter long since defined a tumor to be a circumscribed substance, produced by disease, different, in its nature and consistence, from the surrounding parts. We mean, when we use the term tumor, a circumscribed mass growing in some tissue or organ of the body, depending on some change in nutrition, having an inherent power of growth, and departing widely from the normal form of the part upon which it is situated. They are always the result of perverted growth and nutrition.

Tumors are divisable into two chief groups—benign and malignant. The distinctive characters of the benign, or innocent, tumors, are: 1st, that they are formed of structures very much like those of the natural parts of the body. 2d, that they do not exclude, or replace, the structure of the part in which they are situated. 3d, that the degeneration and disease that may occur in them, are not prone to extend beyond them. 4th, that they very seldom multiply or propagate themselves. 5th, that they are generally single, and, if multiple, they are found in the same part or tissue. 6th, that when removed, they are not likely to recur.

The characters of malignant tumors are; 1st, that they are formed of structures very unlike the natural tissues of the body. 2d, that they are infiltrated into the tissues of the part, and exclude those tissues. 3d, that when they ulcerate, they do not confine their destructive effects to themselves, but extend beyond their boundary, and invade every structure in the neighborhood. 4th, that they not only enlarge, but multiply and propagate themselves. 5th, that in their multiplication and ulceration there is hardly a tissue or organ they may not invade. 6th, that when removed, they invariably return.

These distinctive characters of tumors should be well remembered; for, while it often happens that we may be unable to tell what particular class a tumor belongs to, we can, by closer examination, almost always, say whether they belong to the group of benign or malignant tumors.

Again, the group of innocent tumors may be divided into the cystic and solid. The cysts are of two kinds—1st, simple, or barren; 2d, compound, or proliferous.

The simple cyst consist of a sac, or bag, filled with a fluid, either its product by secretion, or by endogenous growth. They may contain serum, blood, synovia, oil, or seminal fluid, and are named according to their contents.

The proliferous are those which produce organized structures from their inner wall, either secondary cyst, single or multiple, or vascular growth, such as glandular, cutaneous, or dentigerous products.

The solid tumors are formed of tissues precisely like the natural tissues of the body, and are named, according to their structure, fatty, fibro-cellular, fibrous, cartilaginous, osseous, &c., &c.

Tumors may be situated in any part of the body. Malignant growths are most generally seated in the glandular organs; benign in the skin and cellulo-adipose tissue. They assume a variety of forms—globular, oval, flat, pendulous, pyriform, or pediculated. They vary exceedingly in their volume—sometimes not larger than a millet seed, and again as large as the patient's body.

As we have already seen, they differ very much in their consistence.

Their mobility is dependent on their nature, situation, &c. Some are never movable, others always, whatever may be their age, volume, or situation. Usually, when small, they give rise to no uneasiness in the part where located; but as they grow, and become large, they encroach upon and irritate the surrounding tissues; they cause absorption by their pressure, and often, too, seriously interfere with function.

Having an inherent growth, almost entirely independent of the body, it is not astonishing that medicines have but little effect in removing, or even arresting their progress.

They very rarely disappear spontaneously. Sometimes, however, they disappear by absorption, or ulceration, or gangrene. It is only by surgical procedure that they can be got rid of.

The operation for their removal is sometimes so simple and insignificant, that the merest tyro may perform it; at others, the most intimate anatomical knowledge, and the highest surgical skill, is requisite for their safe extirpation.—*Nashville Medical Journal.*

PHYSIOLOGY OF THE PANCREATIC SECRETION.

M. Bernstein has published in the *Arbeiten aus der Physiologischen Anstalt zu Leipzig* some conclusions derived from experiments made, under the superintendence of C. Ludwig, upon the pancreatic secretion (*London Lancet*, November 19, p. 722). His views do not accord with those of Claude Bernard. He thinks a perfectly natural and healthy secretion can be obtained from dogs in which a permanent fistula of one of the ducts has been established; for he found the fluid thus obtained capable of converting starch into sugar, of emulsifying fat, and of digesting albumen, or, in other words, of converting it into peptone. The gland was found to be active in direct relation to the ingestion of food, the secretion increasing in quantity immediately after food had been taken, and attaining its maximum about two or three hours after a full meal, and then diminishing to the fifth or seventh hour, then slightly augmenting, and falling to its minimum at the fifteenth hour. Some of these results are similar to those already advanced by other authorities. The most interesting experiments were those instituted by M. Bernstein to investigate the influence of the nervous system on the pancreatic secretion. He found it greatly diminished in its flow when nausea was produced, while actual vomiting almost arrested it, the effect lasting for a considerable period. He also discovered, by irritating the pneumo-gastric, mechanically or otherwise, that any centripetal irritation of that nerve arrests the secretion,—that is to say, exerts an inhibitory influence on the activity of the gland.

A NEW PREPARATION OF COTTON FOR STANCHING HEMORRHAGE.

Dr. Ehrle, of Isny, calls attention, in the *Schwabischer Merkur*, to a simple preparation of cotton, which he has found of great service in surgical operations followed by great effusion of blood. The mode of preparation is as follows: American cotton of the best quality should be cleansed by boiling it for an hour in a weak solution of soda (about 4 per cent.), then repeatedly washed in cold water, and dried. By this process it will be perfectly disinfected and adapted to more ready absorption. After this it should be steeped once or twice, according to the degree of strength required, in liquid chloride of iron, diluted with one-third water, pressed, and thoroughly dried in the air,—*neither in the sun nor by the fire*,—then lightly pulled out. The cotton so prepared will be of a yellowish-brown color It must be kept very dry, as it is affected by the damp. Lint may be similarly treated, but the fine texture of the cotton renders it preferable. When placed on a fresh wound, it causes a moderate contraction of the tissue, and gradually coagulates the blood in and beyond the injured veins, thus closing the source of the effusion. This property of the chloride of iron is increased by the dryness of the cotton and the extended surface offered for the development of the chemical action.—*Pharm. Journal* (*London*).

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Dr. E. Sommer, in *Zeitschrift fur Rationelle Medicin*, declares that sleep is the result of a *deoxygenation* of the organism. "The blood and the tissues possess the property of storing up the oxygen inhaled, and then supplying it in proportion to the requirements of the economy. When this state of oxygen is exhausted, or even becomes too small, it no longer suffices to sustain the vital activity of the organs, the brain, nervous system, muscles, &c., and the body falls into that particular state which we call sleep. During the continuation of this deep repose, fresh quantities of oxygen are being stored up in the blood, to act as a supply to the awakened vital powers. Rest produces though in a less degree, the same effect as sleep in reducing the expenditure of oxygen.—*National Med. Journal.*

LOSS OF SPEECH AFTER CHLOROFORM.—A servant girl, says the *Allg. Med. Centr. Zeit.*, for the sake of the extraction of a tooth, inhaled chloroform for a short time. On awaking, she had lost the power of speech, could not utter any sound whatever, and remained in that state for five weeks, in spite of various remedies, especially electricity. After this time she began to speak in a low tone, and was put under appropriate treatment. It is supposed that she suffered during anæsthesia from rupture of some cerebral vessel.—*Detroit Review of Medicine and Pharmacy.*

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SIMPLE METHOD OF ARRESTING OBSTINATE EPISTAXIS —A writer in the *Gazette des Hopitaux* states that attentive observations of the face of a patient attacked with epistaxis will detect a slight intermittent movement of the soft parts near the ala of the nose on the side where the blood is flowing; even if this pulsation be not seen, it may be felt. Pressure with the finger over this branch of the facial artery is said to arrest the hemorrhage immediately.—*Med. Gazette.*

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BEE STINGS.—A writer to the *Scientific American* says that "a good absorbent" will ease the pain of stings.

"The best absorbing substance that I have tried is lean fresh meat. This will relieve the pain of a wasp sting almost instantly, and has been recommended for the cure of rattlesnake bites. I have also used it with marked effect in erysipelas."

◆

ANTIMONOID.—A welding power named antimonoid, has been in use for some time past in Germany, and found to be of great efficiency. The formula for its preparation has, until lately, been kept a secret; but we now learn that it consists of four parts of iron turnings, three parts of borax, two parts of borate of iron, and one of water.

◆

A DENTIST in Philadelphia has traced out the career of 1,000 dentists, with this result: 163 died before they reached middle life, 643 attained fair success, 57 made fortunes, 27 died from intemperance and other vices, 96 failed entirely, and 3 committed suicide.

IRREGULAR DENTITION.

Extract of Clinic from Dr. J. E. GARRETSON, Lecturer on Surgical Diseases of the Mouth.

I next show you a girl, 15 years of age, who comes to us with an irregular, uneven superior dental arch; and as it illustrates some of the anomalies of dentition, I bring the case before you. We look at her upper jaw, and perceive that she has sixteen teeth, eight upon either side of the center. Now she is only 15 years old, at which age you know, that the ten deciduous teeth should have all been replaced by permanent teeth, yet the third molars or wisdom teeth should not have appeared. Her complete set upon the upper jaw, at present, would therefore be fourteen. I find that there are here three molars upon each side, yet there is space still remaining behind these, in the normal position of the wisdom teeth, and am therefore confident that these are still to erupt, which would give her eighteen in the arch. Whence then these three molars? I examine them carefully. The posterior one is evidently the normal second molar, and the next neighbor is the ordinary first molar; yet between this and the bicuspids is an intruder upon either side? What is it?

Supernumerary teeth are, as a rule, doubly conoidal; but this is not so. It is, however, small and diminutive, and presents every appearance of a milk tooth—the second molar; and such in truth it is, remaining here at the fifteenth year, whereas it should have dropped out at the tenth—its fangs not having been absorbed from some reason unknown to us. Now, fortunately, there has been nearly sufficient room in her arch to accommodate this retention, and the teeth are but moderately displaced; yet, suppose that it had been impossible for the permanent teeth to have crowded their way into the arch,—they must have been compelled to make alveoli for themselves, and would, probably, have emerged posteriorly to the deciduous, at some point in the roof of the mouth, or might have formed an odontocele. This condition of odontocele is one we will frequently remark when we find a deciduous tooth in the place of a permanent one, and, in fact, we should bear this relation in mind in all dentigerous cysts, for they are often found in connection also with supernumerary teeth.

In its relation to these osteo-dental, or dentigerous tumors, or odontoceles, or compound cysts, as they are variosly called, this case is especially interesting to us, since the presence of these teeth might have readily resulted in the formation of such a tumor. The most common position for such tumors is in the region of the palatine processes of the superior maxilla. Yet, I remember one case in which I found such an encysted tooth, with its apex in immediate relation with the floor of the orbit. Your diagnosis will rest mainly upon their position and upon their size, but in cases of obscurity you could easily settle the question by an exploring needle, which will reveal, at least to an educated touch, the presence or absence of tooth structure. The contents of these tumors, or compound cysts, sometimes consist of undeveloped but more commonly of supernumerary teeth. The presence of these supernumerary teeth in such a position is interesting also to us in a physiological as well as a surgical point of view, for as they are not necessarily a dermatic production, the appearance of these in the mouth is as unaccountable as is their association with ovarian or other remote tumors.

In the present instance, however, these teeth are nearly in position, as are also the permanent, so that we have but to afford a little more room in the arch, by the extraction of these offending bodies, thus allowing the remaining ones to fall into their normal place.

An encysted tooth germ, as could readily be inferred, may heterogeneously develop; that is, there may be such a transposition of the dental elements that the microscope can alone individualize them. A famous case of this kind I have reported in my Oral Surgery, where the son of a banker, as the result of encystment of the germs of two of the molar teeth, had a tumor form in his lower jaw, which never was diagnosed until after a resection of the bone, when the microscope demonstrated it to be dentigerous. Anomalies of dentition should claim from you considerable attention.

TIC DOULOUREUX CURED BY GALVANISM.

An interesting case is reported from the practice of Dr. Wilks, of a patient who first began to suffer from neuralgic pains in the left side of the head. At first the pains were slight and transient, but they gradually became worse and more frequent, until they were now excruciating, and brought on by slight causes, such as blowing the nose, talking much, or eating. The nerve involved appeared to be the first division of the fifth. She had lost all her teeth on that side; she had never had rheumatic fever or ague, and was in other respects in good health. She was ordered three minims of tincture of aconite three times a day, but this produced no improvement. On February 1st she was ordered a drachm of chloride of ammonia every six hours. On February 7, being no better she was ordered half a drachm of the hydrated peroxide of iron and three grains of sulphate of quinine every four hours. On February 11 she was no better, and was ordered fifteen grains of bromide of potassium every four hours. On February 17 she was no better. All medicine was ordered to be omitted, and a continuous current of galvanism from twenty-five cells to be applied; after this she gradually improved. On February 28 she was much better. On March 18 she went out, saying she was quite well. (See *British Medical Journal*, July 9.) *Practitioner*, *Aug*. 1870.

NEURALGIA OF THE JAW BONES.

Prof. Gross says: "There is a form of neuralgia of the jaw bones which, as far as my information extends, has not hitherto been described. Its seat is in the remnants of the alveolar process of edenlulous persons, or in the structure, and in the overlying gum, and is met with chiefly, if not exclusively, in elderly subjects. It is more common in the upper than in the lower jaw. The part affected is usually very small, often not exceeding a few lines in extent. The soft tissues around do not seem to suffer, at least not in the same degree; on the contrary, the morbid action is generally limited to the osseous structure. In rare instances there may possibly be some involvement of the gum, which is nearly always exceedingly hard and dense, grating more or less under the knife, and adhering with extraordinary firmness to the atrophied alveolar process beneath. The pain is generally paroxysmal, coming on in fits and starts, very much as in ordinary neuralgia, the slightest causes being sufficient to provoke it, as talking, mastication, the contact of hot or cold fluids, deglutition, or mental excitement. Sometimes it is momentary, coming and going with the rapidity of lightning; occasionally it lasts for hours together; and cases occur, although they are rare, in which it continues, with but little mitigation, for an indefinite period. The pain varies in character; thus it may be sharp and darting, dull, heavy, aching, boring, or gnawing. Pressure generally relieves rather than aggravates it. Now and then, when it is uncommonly severe, there may be more or less spasm of the muscles of the face, but this is rare. The pathology of the affection seems to be compression of the minute nerves distributed through the wasted alveolar process, dependent upon the encroachments of osseous matter upon the walls of the canals in which they are naturally inclosed. The disease usually comes on gradually, and proceeds from bad to worse until, in many cases, the suffering is rendered nearly intolerable. The only effectual remedy is excision of the affected alveolar process. No particular attention need be bestowed upon the after treatment. A mild course of chalybeate tonics may be required when the patient is anæmic, or affected with flatulence and indigestion."—*Amer. Jour. Med. Science.*

A LEGION OF LEECHES.

Seventy-four thousand doctors! Think of it. All this number in our country, according to the present census, unless the newspapers inform us falsely. In 1860 there were 55,000—an increase of 19,000 in ten years, or nearly 2,000 a year!

Ought not these figures to "give us pause?" Reflect a moment what an army they would make, even in this day of big armies; or what a city they would form, larger than any in many of the oldest States.

Or, look at it again from another point of view. What a mint of money it takes to support this army! Probably we are within the mark when we calculate that the average income of the 74,000 from practice is a $1,000 a year each. This makes $74,000,000 a year, which the sick pay for medical advice. For their medicines it is safe to say they pay the odd $26,000,000, which remains to make up $100,000,000 a year, as what sickness costs the American people. And in this calculation we have left, altogether, out of account the tons and hogsheads of quack medicines, which this misguided people pour down their throats. We could safely estimate that at $25,000,000 a year more.

As we are economical in spirit, would it not be well to save some of this? Can it not be done? Let the people study these figures a while, and then reflect that probably one-half, or certainly a large fraction of this expense, is incurred by a deliberate infraction of the laws of health; that if they tippled less, smoked less, overworked less, were less given to lechery and wantonness, ate slower, exercised more judiciously, were less "fast," and less self-indulgent, they would save thirty or forty millions a year. When hygiene is at a loss for any other argument, she can appeal to frugality, and satistics will show that the appeal is a wise one.

Making money is in America the "chief end of man"—as the Westminster catechism has it. Plenty of advisers are ready with their wise saws to tell how it can be accomplished. We are one of them, and offer a saw quite as true and less trite than any of them, and it is this—keep healthy. Living in the midst of a commercial mart, and in the thick of the desperate conflict for wealth, we have seen many a hero in the fight lose all for want of health, lose it, perhaps, just at the moment when a month or two more of work would have made a fortune.

It is said that when Alexander VI died, his son, the famous Cæsar Borgia, had every provision made to seize the supreme power and make himself master of Italy, that he had every possible contingency guarded, but one, and that was his own physical inability to take advantage of the crisis. But sickened to threatening illness, by the same poisoned wine which killed his father, he lost his chance and died defeated, an exile and a captive. It were well if many an American business man took warning by the moral this fragment of history conveys, and would remember that the labor of life may be lost by the preventable illness of a week. —*Medical and Surgical Reporter.*

SKIN GRAFTING.

This operation, it would appear, from our recent journals, has been pretty frequently resorted to, of late, in the London hospitals.

Mr. Mason has performed it at the Westminster Hospital in nine instances, as is stated in the *Lancet* of October 22, 1870.

The first was that of a girl, with a cicatrix of a burn in the neck, of which a separate and detailed account will be given on another occasion.

The second was that of a woman who, for three years, had an ulcer on the leg, measuring about four inches by three. Three pieces of skin, of the size of a canary seed, were snipped from the front of the upper arm, and simply placed on the ulcer, and retained in position by means of a strip of transparent plaster, made by Ewen, of Jermyn street, and over this, water dressing and a bandage were applied. At the end of a month the ulcer had nearly healed, each of these pieces having, in a fortnight, attained the size of a fourpenny piece.

The third case was that of a man, with a flabby-looking ulcer, as large as the hand, situated in the groin. Four small pieces, from the front of the upper arm, were grafted. Three failed to grow, and the fourth, after one month, was only the size of a pea.

The fourth subject was a woman, with an unhealthy ulcer of the leg, extending nearly all around the limb. Four pieces were grafted, and they all failed to grow.

The fifth, a woman, with an ulcer of the leg, of four years' standing, and two by three inches in size. Two pieces of skin were grafted, and, in three weeks, each measured a quarter of an inch in diameter.

The sixth, a man of middle age, with an ulcer of the leg, four by three inches in size, of nearly four years' standing, which was sloughing at the time of admission. Charcoal and linseed poultices were first applied, and the wound soon showed fairly healthy granulations, on which four pieces were grafted; and on the strips being removed, four days later, they were all found to have adhered. When seen eleven days after the operation, they were spreading rapidly.

The seventh, a girl, aged twenty, with a flabby ulcer on thigh, of eight months' standing. Two pieces were grafted with good result.

In the eighth and ninth cases there were smaller ulcers, in which one piece only was grafted. They rapidly recovered.

Mr. Mason, without committing himself to a decided opinion on this interesting operation, believes that its success depends on the ulcer being, if not in a healing condition, at least of a healthy character. He had understood from Mr. Pollock, who first showed him the operation, that the grafted portions often disappeared for a time, and were, as it were, reproduced in the course of a few days. Mr. Mason has never noticed this phenomenon. In his successful cases, the grafted pieces have, on the contrary, never faded away, or diminished, but remained centres of centrifugally spreading growth. They have, in some instances, assumed, in the course of a few days, a cupped or depressed appearance, as if a kind of very superficial ulceration were proceeding; but they have ultimately filled up again, and the process of healing has proceeded. The pieces of skin have only disappeared in cases where they have perished. The situations most favorable for this procedure are, Mr. Mason thinks, those where—as in the case of ulcers of the leg—pressure can be readily applied, so as to keep the grafted skin permanently fixed for three or four days.

Perhaps the difference between the results of Mr. Mason's experiments and those of other operators, as to the disappearance of the transplanted skin, may be accounted for by the rather large size of the portions (picked up in an ordinary dressing forceps) which he cuts off.—*Medical News.*

IMMOBILITY OF THE JAWS.

James D——, aged 21 years, has come to us from Henry county, Tennessee, for relief of an immobility of his jaws, the result of mercury given during an attack of typhoid pneumonia, when he was eight years old. The inflammation resulting from the action of the mercury was very violent, terminating in extensive sloughing, and ulceration of the tissues on the left side of the face, not, however, involving the skin. When the parts healed, the lower jaw was rendered perfectly immovable, and has continued so ever since.

You will observe that the left side of the face is flattened; that it is hard to the touch, but is free from cicatrices. When separating the lips, you see that, by his efforts, not the slightest motion of the jaw can be effected; that the upper teeth (more like tusks) are long, and project over the lower; that, on the right side of the lower jaw, two teeth have been extracted, and through this opening he introduces his food and drink.

Upon examination, I find that all the tissues, from the angle of the mouth backwards, are in a state of inodular cicatrization, and firmly adherent to both the upper and lower jaw. I think, but am not perfectly certain, that there is a slight lateral motion of the jaw.

The patient is in a very unpleasant condition, especially for a young gentleman, and I propose to perform an operation for unlocking his jaw; but such operations are not always successful. Sometimes we fail to unloose the jaw at all, but more frequently, after it is separated, it becomes closed again, by the gradual contraction of the inodular cicatrices in the healing process.

I will now divide, within the mouth, all the adhesions between the cheeks and jaws, freely. It may be necessary, at the same time, to divide the masseter muscle, and, if I should encounter any osseous plates, I will endeavor to sever them; after which, by means of the screw lever first referred to by Scultetus, and afterwards introduced to the profession by our distinguished countryman, Professor Valentine Mott, I will force the jaws asunder, if possible. Either the instrument mentioned, or little wedges of wood, should then be kept in the mouth, day and night, and pieces of slippery-elm bark interposed between the cheeks and the jaws, to prevent them from adhering. I am prepared for obstinate resistance in this case.

(Free incisions were then made through the adhesions, in which was a plate of bone extending from the coronid process to the upper jaw. This was divided with the bone forceps, and a portion removed, and the screw lever applied; but it was not until the second one had been added, and great force used, that the parts were separated. The jaws were then kept asunder by the instruments, for three weeks, at the end of which time the patient had regained the complete functions of his jaws, and went home, with instructions to keep the wedges in the mouth for a month or two.)

* * *

An Itemized Bill —A good anecdote is told of the famous French surgeon Nelaton. Going through one of the streets of Paris one day, he came upon a crowd standing in front of a drug store. There a man lay stretched out who had been terribly wounded by a sharp buggy shaft. His belly had been ripped and a large part of his intestines protruded. His life could be saved only by a very difficult and dangerous operation, but Nelaton was equal to the occasion, and soon his patient, quite a wealthy man, was sent home out of danger. For three weeks Nelaton heard nothing more of him, but then he made his appearance and asked his preserver how much he owed him. "Hundred and fifty francs," replied the surgeon. "That is much," said the man, "but give me a specified bill; here is your money." Nelaton sat down and wrote as follows: "For readjusting a yard and a half of the intestinal canal, at a hundred francs per yard, one hundred and fifty francs"

* * *

Neuralgic Pill.—Dr. T. C. Osborne says that the subjoined combination is very effectual in cases of neuralgia: zinci cyanuretum, gr. vj; quinæ sulphas, gr. ix; morphiæ sulphas, gr. iss; ext. belladonnæ, gr. iij; Ft. pilulæ, No. vj. S. One pill every six hours, until the pain is relieved.—*New Orleans Journal of Medicine.*

* * *

Oxygen Gas Prepared at the Ordinary Temperature.—Prof. Boettger states that when a mixture is made of equal weights of the peroxide of lead and barium and dilute nitric acid of a strength of 9 degrees baume is poured thereon, a current of pure oxygen gas, free from ozone and antozone, is given off abundantly. This mixture of the two peroxides may be kept dry in a stopped bottle for any length of time.

CORNS ON THE FEET.—The following method of removing these troublesome growths is given in *La Sante:* Macerate the tender leaves of ivy in strong vinegar for eight or ten days, then apply them on the corns. This dressing should be applied twice a day, and in a few days the corns will be removed.—*Medical News.*

* * *

PARCHMENT PAPER.—To convert paper into vegetable parchment, immerse it for a few seconds in a cold mixture of one volume water and two volumes sulphuric acid. Wash out rapidly by plunging in a large quantity of cold water, and finally remove all traces of the acid by further immersion in water to which a small quantity of amonia has been added. To prevent the tendency to contract when drying, it should be attached to a frame while wet, or allow it to dry under a press. Paper prepared in this way is very transparent, and can be used for copying by tracing. It is extensively employed as a substitute for parchment made from sheepskin in diplomas, certificates, patents, and for envelopes.—*Chemical News.*

Editorial.

BONE PHOSPHATE.

MANY fail to appreciate the wonderful properties of this salt. Its presence as the basis of bony tissue displays the wisdom of our Heavenly Father.

Phosphorus is a highly combustible element, and when 32 parts of it have combined with 40 of oxygen, it may be regarded as thoroughly burned, and the compound is called phosphoric acid. This acid unites with lime in several proportions, forming as many definite salts, called phosphates. Bone phosphate is a sub-salt, and is not the only subphosphate of lime. To guard against mistakes, we prefer the distinctive term used in our heading. This salt is decomposed with great difficulty. The acid and the base are not separated by a white heat, nor can other acids readily take lime from the phosphoric. Though nearly insoluble in water, it dissolves readily in hydrochloric acid, from which it may be readily displaced by an alkali, being precipitated without change. The gastric juice has no difficulty in dissolving it. It is very fortunate that a salt so permanent is so easily assimilated, in view of the fact that it is essential to the formation of the primary cells as well as the bony structures.

This salt is found in many articles of diet, as in the cereals, and in the muscular tissues of many animals, if not in all. It is probable that a deficiency of this salt in the food is a fruitful predisposing cause of dental decay. A lack of it in the teeth insures softness of the dentinal structure. This is the explanation of the fact that the teeth of the young are softer than those of the old.

A few practical suggestions may be of use here: Let there be a more intelligent and rational selection of dietary articles. The outer parts of the grains are richer in this salt than the inner. Let "cracked wheat" be a substitute for rice, and brown flour for "superfine," "family," "XXX," etc. Let beef, mutton, fowls, etc, take the place of pork and veal. Let milk, pure, fresh, and undiluted, become an article of every day use, especially with the young; and in extreme cases, as in pregnancy and lactation, don't hesitate to advise the free indulgence in pure bone phosphate with the food. And remember, too, that the organic portion of the tooth is quite as important as the inorganic; that if it is not properly developed, the lime salts, however abundant, will not be properly deposited in the dentinal tissue, so as to insure a hard, firm, strong, resisting tooth. Hence, bear in mind that good health during dentition is essential to the development of good healthy teeth. W.

* * *

"Mercury and carbonic acid are examples of bodies capable of passing from the vaporous to the crystaline state or condition by the management of pressure alone, so that crystal, soft-solid, waxy fluid, liquid and gaseous bodies may be exhibited of these substances, running up and down the scale of togetherness and apartness without cataclysm, flood or lines of demarkation of these differentiations, which are thus found to exist but in degrees commensurate to the pressure put on or taken off at pleasure of the investigator, or the spontaneity of natural production! *Pragmatic pathology* includes all the progresses and regresses in the constructions and destructions of the individual (separate) domains of crystalosophy, cellosophy and corpusculosophy, an exhaustive observation of whose processes will bring within the pale of consciousness all the possibilities of matter and mind.—*Report on Dental Pathology and Surgery.*

KEY TO THE ABOVE PERFORMANCE.

"That I may be clean, I feel bound to say to you, that not a word in that report is mine, but is taken from the fount of inspiration which wells up within me."—*Discussions on said Report.* See December number of DENTAL REGISTER.

And of such is (and is to be) the pathology (?) of the AMERICAN DENTAL ASSOCIATION! W.

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THE FORTHCOMING VOLUME

Will present some improvements, we trust, which will be acceptable to our subscribers. A better quality of paper is used—it is a fine book paper—the typographical execution will present improvement, and in other respects it is expected the profession will aid in securing constant improvement. Send in well written communications. T.

TABLE OF SOCIETIES.

For several years past we have published a list of all the Dental Societies in the United States, the time and place of their meetings, and the names of the principal officers. This has been done at an expense of $75 to $100 per annum by the publisher,—a *gratuity* to the profession. With the March number we propose a change in this particular, viz: that all Societies that wish a place in this List make an annual contribution of $5 to assist in defraying the expense of its publication. No claim is here made upon any Society either for the past or the future, but any one making the contribution will have a place in the list. This is the best and indeed the only systematic notice of the meetings of Societies that has ever been given. This work was entered upon in the outstart, with an entire willingness and a desire to encourage the organization of local societies, and if possible stimulate those already in existence to greater activity. We shall be pleased to receive a corrected notice from every Society wishing a place in this List. J. TAFT.

MEETINGS.

The Mississippi Valley Dental Society will hold its annual meeting, beginning on Wednesday, at 10 o'clock, A. M., the 1st of March next. It is unnecessary for us to say anything to the old members in the way of urging them to come, for they know that this is one of the most efficient dental societies that has ever been organized; and they know when they come up to its meetings what to expect, and we are confident they will all so far as possible be present. And to all who have not met with this Society we same COME, and it will do you good,—you will lose nothing, but gain much. Let every one come prepared to present something; either a few thoughts, *or a thought*, or some valuable mode of operation, instrument or appliance. A very certain way of receiving something valuable is to bring something of value.

Two questions usually and should always occur to us after attending our professional meetings, viz.: Have I received anything valuable? and, have I given anything of real worth to others? With the first of these most persons seem to be most concerned; they regard every meeting from which they have not gained some especial new and valuable idea, as a failure—rather a sad reflection, to say the least, upon their ability to do good to others, which is quite as important a matter as to receive.

Let all come prepared to contribute something, and let this, the twenty-seventh annual meeting of the Mississippi Valley Dental Society be one of the best ever held. T.

* * *

The Ohio Dental College Association will meet on Tuesday, Feb. 28th, at 2 o'clock, P. M., when it is very desirable that all the members should be present, as very important business will come before the Association for consideration and decision, in settling which every member should have a voice. Then let every member so far as possible be in attendance. T.

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At the meeting of the State Board of Dental Examiners held in Columbus, in December, the following members of the profession presented themselves, and having passed a satisfactory examination, received each a certificate of qualification to practice dentistry in the State of Ohio, viz: E. Chidester, Massillon; J. H. Siddal, Canton; T. J. Fahnestock, Cincinnati; J. S. McCarrall, Bucyrus; W. J. Moffit, Coshocton; M. A. Spencer, Orrville; G. A. Curtis, Galion; M. Jefferson, Cambridge; S. B. Lewis, Greenville; W. T. Semple, Mt. Vernon: Robt. W. Stevens, Mt. Vernon. Most of these were men of many years' experience in the profession, and had already made a good reputation, but having a commendable regard for the law, and the best interests of the profession, sought an early opportunity to comply with the requirements. The next meeting of the Board will be held in Cleveland, on Wednesday the 7th of June next.

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NEW FOIL.

We have been using a foil just introduced, bearing the name of Geo. Watt & Co. as manufacturers, better than which we have never used. It is soft and pliable, yet very adhesive. It seems to have about every quality that can be expected in gold foil. We advise all to try it. So far as we have tested it it is very uniform in working quality. T.

THE
DENTAL REGISTER.

Vol. XXV.] FEBRUARY, 1871. [No. 2.

Communications.

NERVOUS SYSTEM.

Essay by G. F. Patton, Jan. 21st, 1870, Cincinnati, O. Read in Quiz Class. Dental College.

It is clear that whatever lives and moves must be supplied with muscular force, and that this force must be directed by some agency, causing it to act with regularity and in such a way as to benefit the machine of which it forms a part. Now as far as our investigations have enabled us to discover, every motion of living beings is directed by the same kind of apparatus, viz.: muscles, whose action is entirely regulated by nerves. Therefore we are justified in the hypothesis that all vital nature is supplied with appropriate nerves. Even vegetable life may be said to have its peculiar nervous arrangement, for we find the roots of plants killed by an agent acting on the leaves and branches. In some species of plants there is such an exquisite sensitiveness that a touch of a single leaf causes the entire foliage to shrink and withdraw. Therefore starting with the hypothesis that every vital organization has its proper nerves, we will examine that order belonging to the vertebrata, and particularly of man.

The general principles of nervous endowment are the same in all animals, even in its most primitive and simple form.

This system is seen to consist of a central organ, or a number of organs joined by commissures, and from this center nervous cords radiating. In all the vertebrated species the center is essentially this: a medullary cord. In man this is called the cerebro-spinal axis, from which are given off three distinct classifications of nerves. Those in the cranium; Those given off from the spinal cord; and those arising from the ganglionic or great sympathetic system, which extends along the outside of the spinal column. I propose to discuss particularly the action of the nerves, but it seems that withont a preface of anatomy, the harmony of this beautiful structure can not be properly demonstrated.

The brain and spinal cord are composed of two kinds of substance, white and gray. In the brain the gray substance lies externally to the white, much as the bark covers the inner portion of a tree, hence it is called cortical. It is also called cineritious, from having the color of ashes. In the spinal cord, however, the gray substance forms the interior portion. Each of these (white and gray) portions has its peculiar function. At the base of the brain and about the fourth ventricle, from which the greater part of the cranial nerves arise, it will be seen that those having a sensitive function spring from the gray matter in that region. In the spinal cord, which we have found to consist of both gray and white matter, the sensitive roots of the spinal nerves arise in a tract of gray (Port. Lat. Sulcus) in connection with the posterior column. So we may safely say that the gray substance of the spinal cord and brain is the seat of sensation, or at least that it receives the sensitive impulse. The white portion is then left as the seat of motor action; and this conclusion is carried out in the cord where the white matter preponderates, and as the motor spinal nerves supply a much greater demand than the sensitive. As the motor nerves arise from the anterior lateral column, we have good grounds for supposing that the white substance presides over motion. We all understand that these conclusions must be based on experiments and hypothesis drawn from these experiments. So while there is a chance that these conclusions may be wrong, there is an almost certainty that they are correct. The manner in which the nerves act is peculiar, and they owe their power of transmitting impulses to some inherent principle that we can have little hope to explain. The nerves may be compared to a certain class of philanthropists; they work entirely for the good of the general system and appropriate no benefit to themselves, but they are only willing to work in their own legitimate capacity. If one artery fails, another will supply the deficiency thus created. If one of the organs of digestion is paralyzed, another will try to assume its function. *Not so* the nerves. Although in the spinal nerves the sensor and motor filaments lie mingled in the same sheath and are, perhaps, distributed to the same parts, yet if the motor root be divided, the part which it supplies is paralyzed so far as motion is concerned, but the sensitive portion of the nerve continues to carry impressions to the brain just as if its motor brother was not injured, thus showing a perfect disregard of all except its own *duty*.

The provision of nature is, that the sensitive nerves shall only transmit impulse or impressions to the brain, and the motor convey the dictates or commands of the will to the muscles. For example, should the little finger come in contact with a red hot body, the superficial Palmer branch of the Ulnar nerve immediately telegraphs to the brain that the part over which it is standing guard is being imposed upon; the brain immediately telegraphs back by a motor nerve to the muscles of that region to remove the finger from contact with the offending object. This is done forthwith, but the finger must wait until all this communication takes place before its suffering can be relieved. This is all done, however, with electric rapidity.

The cerebro-spinal center and particularly the brain, is like the capital city of a great government. There are its various chiefs of departments in the organs of special sense, the sympathetic ganglia, the cranial nerves, and the plexuses of the spinal nerves; each of these departments has its peculiar affairs, which are under the supervision of the smaller branches coming from the ganglion, plexis, &c. The olfactory nerve has its detective officers distributed to the Schinderian membrane to watch that no odors or effluvia which are offensive or injurious can have admission. The optic nerve stands with its retinal expansion of sentinels, to watch in the light houses, and the other two of special sense act similarly in their respective functions. The pneumogastric is a special officer, who must look to the performance of the heart, lungs, and stomach; it also must have an eye on the spleen and pancreas, gall cyst and liver.

The spinal nerves are mail routes and telegraph lines to more distant parts of the country. In each department there is so much business to be transacted that there must be a separate mail route or wire for the intelligence passing to the capital, and the instruction from the capital to the organs in the different parts. Here we have the sensitive nerves bringing the news to the brain and the motor nerves taking instructions from the brain to the muscles or other organs. The communication from the sensor to the motor nerves can be excited, even after death, by electric shocks, by corrosive chemical agents, and by mechanical irritation—the precise manner in which the motor nerves affect the muscles, can never be known. The muscles themselves are possessed of some principles that cause them to respond to the action of galvanism and the other exciting agents above mentioned. But what the nature of these influences is, yet remains a subject of conjecture. The great sympathetic system of nerves, is one that is independent both of the cranial and spinal, though communicating with both. It consists of a series of ganglions extending along the outside of the spinal column, from the head to the coccyx. Its branches go to the internal organs and viscera. It presides over the action of those organs which are not under the control of the will, such as the heart in its diastole and systole and the secreting organs of the whole body. Its service to the great government is performed in mystery and secrecy. It has entire control over its districts, and no simple order from the imperious will can suspend its action. It is one of the old style of workmen who performed their work promptly and perfectly; but it can not be made subservient to the same power that rules the other senitors of the brain. It does all that is required of it, but must not be questioned, nor commanded. It dilates or contracts the iris, so as to graduate the intensity of light admitted, to the most minute shade. It regulates the rise and fall of the chest, controls the beat of heart, the secretions of all the glands. It knows by its communicators the events transpiring around and regulates its action accordingly.

DENTAL HYGIENE.

BY H. L. AMBLER, D. D. S., M. D.

Inasmuch as the present luxurious habits of man, and his artificial modes of living elevate him to the highest summit of perfection, they also lead him to the greatest physical and moral vicissitudes, and not infrequently tend to injure, and even destroy the health and life of the teeth; which are considered as an example of nature's perfect and most precious works of utility and beauty. In common with the entire constitution of man, the teeth are obliged, notwithstanding the remarkable health and strength with which they have been endowed by nature, to yield to many causes which as frequently injure and destroy them, therefore we can not too strongly reprehend the bad habit of those who after meals torment their teeth and gums, by picking with a knife, a pair of scissors, pins, needles, toothpicks of ivory, bone, silver, or gold. The best toothpicks are soft wood, or quills not boiled, as then they are not deprived of that oily substance which gives them softness and elasticity. The toothpick should be ready and be used thoroughly after eating, any time of day or night. One of the great secrets for the preservation of the teeth, is avoiding everything likely to injure them, and therefore we must observe the following: never bite or crack hard bodies with them; never make a corkscrew or vise of the jaws; never bite thread or similar substances; never allow food to remain in cavities or between the teeth; never use such preparations as soot, charcoal, coral, coarse pumice stone, acid elixirs, and tinctures of any kind; never take ice-cold water or food immediately after partaking of hot food or drink; never reside in low humid places, or in localities subject to sudden and great variations of temperature; never make too free use of mineral waters, as they are apt to set the teeth on edge and cover them with a blackish coat; never eat an excess of confectionery, and shun such employment as requires the frequent handling of mercury or other metallic substances, which, on being reduced to vapor, alter the teeth in a remarkable and serious manner.

It is a subject of regret that persons wise and cautious on most other subjects, should manifest such indifference in selecting the means of preserving the teeth from premature disease, pain, and death. The management of the teeth should not be entirely limited to the dental surgeon; it will be useful to every human being to know how to take a rational and daily care of these important organs. Dr. Brown says:

> "Be wise in time, 'tis folly to delay;
> Cast all your vile cosmetic drugs away;
> Exchange the shallow artifice of dress,
> For nature's more enchanting loveliness,
> And know that blooming health alone abides,
> Where chaste and temperate cleanliness resides."

It is a fact known from observation, that those who have paid much attention to their teeth, and from early youth have attended to cleansing them frequently, regularly, and thoroughly, have altogether far better ones than those who neglected this important practice, or have attended to it at irregular and uncertain times. Nor could it be otherwise, for upon the presence of putrid foreign matter, vitiated mucus and saliva, do many of the diseases of these organs depend. The fact then, that cleanliness of the teeth is essential to their health and preservation being established, a motive sufficiently strong for its observance is no longer wanting. To a pleasing and agreeable expression of the countenance, a clean and healthy denture is of the greatest consequence, even if it lacks that perfect regularity which is desirable, if it only be free from all extraneous matter, its appearance will never be disgusting. However particular persons of either sex may be about dress, though they be decked with gold and sparkle with diamonds, if unmindful of their teeth, they fail to excite those feelings of admiration which they otherwise might. It is not only essential to personal appearance but to comfort, and this ought to be a sufficient inducement to the regular observance of such means as are necessary to keep the mouth and teeth well cleansed. The frequent and thorough cleansing of these organs is of the greatest importance to insure a pure breath, and those who neglect such measures must necessarily breathe contamination, the exhalations of which are quite perceptible to those around. In proportion as the teeth are unclean, especially in those of delicate constitutions, is the appetite impaired and the digestive organs weakened; and thus the capability of enjoying life is often greatly diminished.

Among the toilet articles which may injure the teeth are the several kinds of paints, waters, and pomades intended to remove freckles from the face, or dye the hair. Most of these cosmetics contain astringent and even caustic properties, such as antimony, bismuth, the hydrochlorates of lead and mercury—substances which act directly upon the teeth, to which they are carried by the lymphatic vessels which ramify upon the mucous membrane enveloping the necks of the teeth, and entering the alveolar cavities. Those who from position feel compelled to use beautifiers for head or face, should confine themselves to such as are purely vegetable, for these are less injurious to the teeth.

The habit of applying dentifrices to the teeth with a cloth, or the corner of a towel, is not a good one, for the pressure only tends to force the accumulations between the teeth, rendering it more difficult to dislodge them. Experience is in favor of the brush, which can be directed against the most distant ones, and penetrate the intervals which separate them, brushing them thoroughly both outside and inside, parallel and transverse with their axis.

The constant use of soap for cleansing these organs is somewhat objectionable, for it will eventually give them a yellowish shade, which is one of the things to be prevented. Table salt can not be used with perfect safety, for it acts much like other powders, and besides it is composed of soda and hydrochloric acid, whose action can not be nugatory in whitening the teeth. Its employment also occasions abundant salivation, which, useful enough in some circumstances, is foreign to the end we now have in view.

In subjecting the mouth early to the rules of cleanliness, and to the different hygienic precautions which we have described, we most assuredly place the teeth in the condition most favorable to their preservation; but to obtain the full efficacy, these precautions should be regular and continued. Thus may a great number of the diseases of the teeth be nearly or quite prevented. Then we say never neglect those cares of neatness which form the daily toilette of the mouth, for they are simple and easy to be performed, when once accustomed to them. A beautiful denture constitutes a charm which is hardly excelled by a noble and well cultivated mind. The preservation of these organs should be an object of solicitude with every one, feeling and knowing that one natural tooth is of more value than a full set of artificial ones. One thing much to be regretted both by operator and patient, is that people are in the habit of giving the teeth hardly a thought until they begin to ache.

No one doubts the importance of a true knowledge of the mental phenomena and of the laws by which they are regulated; neither should they doubt the importance of the care of the human teeth, of which we have the unlimited and sovereign control, inviting to practical application and meditation of the highest moment, in favor of economy, health, beauty, strength, and longevity, besides being an auxiliary to every art, science, and accomplishment in society. If, then, health can be improved and disease averted by means so easy and simple; if the growth of the body and the enjoyment of life can be so materially promoted; if the contour of the countenance, the improvement of the voice, and a more complete enunciation can also be effected by such means, who would not adopt this plan, thereby establishing in their highest perfection, a mind unfettered by a constant source of irritation, and a body impervious to those tortures which, with all the vigor of electric shocks, are darted through the medium of the nervous system, from a disordered mouth to the most remote part of the body; distressing in infancy, miserable in youth, and mortifying the remainder of life, in spite of all that can be done.

OFFICE NOTES.

BY W. H. SHADOAN, D. D. S.

[Continued from Page 537. Vol. XXIV.]

First right superior molar anterior approximal surface decayed. The decay in this case had extended so as to remove all the dentine beneath the anterior buccal cusp, up to within about two lines of the gum, so that when the cavity was prepared, the outer margin of the cavity extended slightly over the anterior buccal slope of the tooth.

In preparing the cavity the nerve was laid bare, which bled slightly. This was stopped by an application of a solution of carbolic acid and tannin. The lingual wall was nearly perpendicular, and at almost a right angle with the floor of the cavity. In this, as in the preceding case, the floor of the cavity was left by the decay slightly deeper within than at the cervical wall, which favored the preparation of the cavity. The retaining pits, three in number, were made one at each angle of the cervical wall, and the other up under the lingual cusp, which was then cut into a V shape, so as to afford one additional support to the filling. The edges of the cavity were then nicely dressed off with a file of suitable size and shape, when the rubber dam was adjusted and we were ready to proceed with the filling.

The point of exposure of the nerve was about a line from the buccal pit or retaining point. The cavity was as thoroughly dried with cotton, bibulous paper and punk as these agents would make it. The lingual pit was then filled a little more than full. The buccal pit was then treated in the same way and the two connected as in the first case. This brings the gold almost to the orifice of exposure of the pulp. I had already prepared a cap for the exposure, by taking a slip of three or four thicknesses of No. 4 gold foil and enveloped a small piece of asbestos, folding the gold over the asbestos so as to completely enclose it, making a pad about one-eighth of an inch square. This piece was then annealed, this does not injure the asbestos, and placed over the point of exposure, the edge coming in contact with the previously introduced gold, is then gently condensed with a foot instrument, No. 8, and the remainder of the cap gently pressed down on the dentine. I then continued the filling at the cervical wall as in the preceding case, being careful to use very light pressure over the point of exposure, until the filling was sufficiently advanced to give strength to the cap. Then with Nos. 8 and 9 the body of the filling was conducted, using Nos. 2 and 3 for the part next the walls. As soon as the filling has advanced from the cervical wall sufficiently to allow work on (what we will, for the want of a better name, call) the edge of the filling, we commence the use on that part with No. 10. It is readily seen that by the use of the Nos. 8, 9, 10, and 5, the filling can be made as perfect in every respect at the cervical wall as at any other part. If I use heavy gold, I use Nos. 14 and 15 for building, finishing with No. 10.

It is seen that the anterior buccal cusp is entirely gone; this is restored by the building up the filling to correspond to the original shape of the tooth.

[To be continued.]

* * *

EDS. REGISTER:—The particulars of this interesting case were given me by Mr. Frost, aged thirty-six.

When about twenty-two years old, a soreness of the anterior inferior teeth was felt. This soreness continued with greater or less severity for two years, when the inflammation became extensive. The chin, neck, and thorax were involved and were much swollen. After a few days it broke opposite the first left inferior bicuspid, when the swelling subsided and nothing unusual was noticed for some time, when there was a repetition of the swelling, with the same result. When the swelling began the third time, the physician who examined it adroitly inserted the point of a lance in the *chin*. A discharge of pus followed, relieving at once his suffering and averting the threatened danger. For nearly a year the discharge continued, through a fistulous opening in the chin. No trouble was experienced when the opening was unobstructed, but when closed there was a tenderness of the left inferior central incisor. Being satisfied that this tooth was the cause of the trouble, he had it extracted, and the restoration to health of the parts, resulted without any subsequent treatment. C. H. R.

Proceedings of Societies.

FIFTH ANNUAL MEETING OF THE OHIO DENTAL SOCIETY.

DISCUSSIONS.

[Continued from January number, page 33.]

Discussion on Dr. Jenning's paper on "Dental Fees." (See December number.)

Dr. J. C. Whinnery heartily endorsed the views set forth in the essay. He denounced the practice of dentists lowering their prices to get business from other dentists. There are dentists, he said, whose mode of getting business seems to be that of underbidding somebody else. In his opinion it is extremely dishonorable for any member of the profession to practice this thing.

Dr. I. Williams is exceedingly pleased with the essay. One point struck him quite forcibly; that is with regard to underrating the work of other members of the profession. It seemed to him to be exceedingly unkind, in examining a filling that has probably been in the mouth for several years, to say that it is a very inferior operation. When we take into consideration the fact that our work was subject to the action of two of the most tremendous forces of nature—mechanical and chemical—it is not right to criticise the work of other dentists, as is sometimes done. He was always glad, when examining the mouth of a patient where operations had been performed by other dentists, to say to them that such a filling was very well done. And when the work was poorly done, he felt better to say nothing about it.

Dr. Spellman thought the dentist ought to be honest enough to tell the patient that such and such work had been bunglingly done, if such was the case.

Dr. Williams: "I do sometimes."

Dr. Spellman liked the portions of the paper he had heard after coming in, very well. He did not think it obligatory on us to be blowing the bellows for other men who do good work, neither should they where there was a failure, be telling it all around, nor tell the patients of it in such a way as to make them dissatisfied with the previous operator. They should be careful to protect the honor and dignity of the profession. If a man should come to him with several operations in his mouth that were entirely worthless, he would be deceiving the patient to permit them to remain so to the utter loss of the teeth, and would be guilty almost equally with the man that made the operations.

Dr. W. H. Sedgewick was pleased with the essay. He often felt that many worthy men in the profession were not properly paid for their services. When men spend time to acquire knowledge and skill to do their work well, they should be properly remunerated for it. He believed the meetings of our Society is fast doing away with the jealous feelings and fault-finding that was prevalent in some localities. Said he, "We should, however, be honest to ourselves, honest to our patients, and, while pointing out any defect in the natural organs of our patients, we should be perfectly free to point out any defects in teeth that have been filled. This, however, could be done in such a way as to cast no reflection upon the profession." He wished they could approach uniformity in their list of prices; as the work of some, however, was undoubtedly worth a great deal more than that of others, there could not be entire uniformity. If they expected to raise themselves in the estimation of the public, they must put a value upon their services.

Dr. G. W. Keely thought it was seldom so short a paper contained so many good points. He concurred with Dr. Whinnery that it was unkind and unjust to underrate the work of others. He thought by so doing they lowered themselves in the estimation of their patients. While he believed it their duty to be honest and inform patients of any defective work they might find in their mouths, yet this could be done without the wholesale condemnation sometimes indulged in.

In regard to fees, he had his regular prices. He thought every dentist should have his minimum prices for different kinds of work, and then difficult operations consuming a great deal of time could be charged for accordingly. Every man should be able to appreciate his work, and where the services rendered were more laborious and lengthy and required more care and skill he should have the courage to charge for it.

Dr. A. A. Blount agreed with the essay in every part. He did not see why they should not charge a fair price for their work as well as lawyers. When extra labor is required in making a filling they should be paid for it.

Dr. N. W. Williams liked the paper quite well. With regard to extracting teeth, he thought it one of the relics of a former age. Every dentist should get rid of it. Another relic of the dark ages, is that of making one set of teeth called "temporary" for the purpose of securing a permanent set—that is, making for ten dollars for the purpose of getting to put in a permanent set. He thought they should charge for every operation whatever it was worth.

Dr. J. C. Whinnery said it had become so prevalent in his part of the country to extract teeth for nothing, that a great many people had received the impression that surgical dentistry was not worth paying for.

An Essay was then read by Dr. W. M. Herriott on "Artificial Dentures." See December number, Vol. 24.

Dr. H. A. Smith asked if he would recommend any material for a base, the composition of which he did not know?

Dr. Herriott replied that the material he had recommended was offered to them by honorable and honest men and good dentists, and that was enough to convince him that it was worthy of trial by them.

Dr. A. A. Blount desired to add his testimony to that of Dr. Herriott's, in regard to the value of Watt & Williams' base. It could be made almost as light and thin as gold plate. It was not so heavy as continuous gum-work. He had been experimenting with it some, and was satisfied that there was no cheap base that was equal to it.

Dr. H. A. Smith inquired of Dr. Blount if he knew what it was made of.

Dr. Watt remarked that there were but three persons in the world that know what it is composed of, and *for the present*, at least, none others would know. There was not a man present, unless one in the adjoining room, that knew what the artificial teeth they used were made of. The objection, therefore, that they did not know what this base was composed of, was without weight.

Dr. W. M. Herriott again spoke in commendation of the new base. He had some experience with it. His patients who had worn it spoke of it as being comfortable. It could be made but little heavier than gold plate, and he could make a more perfect fit with it than he could with gold plate. As a cheap base he had never found anything its superior.

Dr. B. T. Spellman said such were the prejudices of many persons that it was difficult to introduce anything of this kind. It would be remembered that he had been no friend to rubber for many years; he had written the first paper condemning rubber which was read before the American Dental Association. He had been one of the first in Ohio to go into rubber work, but became convinced that it was not a good base. He was using the base here referred to, but not very heavily as he was not doing much artificial work: but he was experimenting with it, and would continue to do so. The trouble was that the public wanted a cheap denture to fill all the requirements of the best work.

This was entirely wrong. This base was presented to the profession as a cheap material, and the important question is, is it destructible or not? There is no advantage in a cheap base as destructible and injurious as rubber—perhaps nothing had been used for this purpose so worthless as rubber. It works destruction to the mouth, and is not lasting itself. This material he knew was destructible to some extent; a slow oxidation goes on in all these metals. The gentlemen that are advocates of it ought not to deny that fact. There is a slow oxidation continuously going on, but that oxidation, so far as he could discover, worked but little injury, and he preferred it to any cheap material that has been offered to the public; he was using it and expected to continue to use it, and rose to give his influence in its favor. He thought it infinitely better than rubber, and the plates much more durable; some might suppose he did not use the rubber because he had no license to do so, but every one present knew he could get a license any time he chose, but he would not take one as a gracious gift. [Applause.] No piece of rubber work should ever go up in his office again with his knowledge. [Renewed applause and cries of "good."]

Dr. A. A. Blount thought the weight of this material was no objection; a denture of sufficient weight is much firmer and enables the patient to masticate much better than with a light one.

Dr. H. A. Smith had every confidence in Dr. Watt's material; the question with him was, whether under the code, they had not a right to know what it is. He was in favor of patents himself, and in this particular differed from the code.

Dr. J. H. Warner, of Michigan, on invitation, addressed the

Convention. He returned his thanks to the Society for the kindness extended to him by them. The remarks of the gentlemen on this subject had pleased him very much. He concurred in the opinion that these cheap materials for a base should only be used as a last resort, but he thought that last resort had probably come. Many patients were not able to pay for the more expensive dentures of gold or continuous gum work, so that a cheaper one is demanded. He had discarded rubber, and would go to mending shoes, or do anything else for an honest living, before he resort to this useless rubber again. [Applause.]

He had been using the Weston metal, and preferred it to rubber, and would go before his patients to-day and attempt to build up a reputation as a skillful dentist upon that, a good deal sooner than with rubber. He believed Drs. Watt and Williams had invented something far superior to Weston's metal, and would investigate the matter. He thought probably some member of this Society would yet invent something superior to Watt & Williams' material. He hoped before the next annual meeting of this Society there would not be a man in the United States that would use rubber plates. He would that the last rubber plate had been made, and the practice of making them were numbered among the dark ages of the profession.

Dr. Watt said, as remarked by Dr. Smith, there is a radical difference between an alloy and a mechanical mixture of metals. An alloy, as he understood it, was a compound of two or more metals chemically combined with each other, while a mechanical mixture is something vastly different. In his younger days he had fallen into the mistaken notion given by many authors, that alloys would not resist chemical action as well as the metals of which they were composed. His observation, at an early day, led him to see that this was an error. Every one there knew well, that brass resists chemical action better than either of the metals of which it is composed.

Dr. W. P. Horton thought it well to have some good cheap material for a base, for though gold answers the purpose quite well, not a tithe of the people are able to pay for it. He had a great deal of sympathy for the poor who are not able to pay the higher prices demanded for the best material.

EVENING SESSION.

Discussion on a paper read by Dr. C. R. Butler, on "The Discipline of the Head, Heart, and Hand." (See December number.)

Dr. Sedgewick heartily endorsed the sentiments of the paper. He had sometimes felt like expressing himself as Dr. Berry, of Cincinnati, had; that he would never take another student, but he would like to see men like Dr. Butler, and others he might name, take young men and educate them for dentists. It was their duty as dentists, to point out to young men who contemplated entering the profession, the great responsibility of the profession, the difficulties to be surmounted, and the education necessary to make a successful operator; and that he should not only possess a fine education and have a studious mind, but should also in a great degree, possess the qualities of the artist, and if he has not these they should discourage him.

Dr. W. M. Herriott was pleased with the idea advanced in the essay, that there was something due to the operator as well as to those operated on. Many in the profession he thought, did not rightly appreciate this. They went about seeking business in a way that showed this, peddling themselves as it were—going before a community and begging people to come to them for operations. He believed each operator should feel that it was as much a privilege to the people among whom he was living and for whom he was operating, to have the privilege and benefit of his operations, as it was to him to receive the amount of money they paid him for his services. Just as soon as the profession comes up to this point, and cease offering to do the *very best* work at the *very lowest prices*, or agree to warrant their work, or do this, that, or the other—and then come up and thank the people for their appreciation of their work—as soon as they reach this independent standpoint, the people will appreciate them as they desire to be appreciated.

In reference to educating students for the profession, he thought there had been too much laxity. In talking to young men who thought of entering the profession, he had advised them to give at least three year's study to the profession, before they should consider themselves able to operate for themselves. If all would do this, it would be better for the profession and infinitely better for the people.

Dr. J. Taft said the paper embraced a subject that was very interesting and important to every one of them. Under the views presented they might discuss almost any of the duties devolving upon them as professional men; their duties were exceedingly diverse. First there was the preparation and attainments necessary on the part of the practitioner. He should place himself in a proper position on this point. All of them should give great attention to this, that they may exert a proper influence upon those who propose to enter the profession. No honest, upright young man will seek to enter the profession in any other than a proper way. No one when he starts out, wishes to become a second-rate, or third-rate dentist. In some cases young men will apply to one and another to be received as a student, but will not be received, and finally will be found under the instruction of some one wholly incompetent to advise them, to say nothing about teaching them; men whose influence would divert them from a right course. If the members of this Society all did their duty as they ought, this would be otherwise with those who come into the profession. If they could not receive students themselves, they should advise them as to what they ought to do. If they could not receive them, they should send them where they will be in charge of good men, surrounded by proper influences. Young men had frequently come to him, who had been in the office of some dentist for three or four years, and yet they did not know the first letter of the elementary principles of a professional education; had never perhaps, opened a book on physiology or pathology, and had scarcely any idea of the definition of these words. Some who are so poorly qualified, knowing nothing of the fundamental principles of dentistry, think themselves well prepared to go out and engage in its practice. Of course these persons had fallen into wrong hands. It was the duty of members of the profession to see that students accomplished all that the profession demands of them. If every man among them who is a good practitioner and possesses a good degree of attainments in the profession, would take the right stand and act up to his conscience and knowledge in this matter, a wonderful revolution in this respect would be accomplished in a short time. It is competent, said he, for our Society to make its influence felt in this matter. Where is the society that has given its influences to our colleges and done what might have been done in this matter? Our colleges are very far below the demands of the times in regard to the mode of their teaching and their efficiency, and why? Because of the facts mentioned. The standard in the colleges is too low everywhere. Why is it that men who can not write a sentence in the English language correctly, can enter and graduate in one session? If we would prevent men thus being sent out half-fledged, we must come out and take a higher standard. We are all at fault in this matter, somewhat necessarily so because the profession has been lying asleep in the matter.

He thought they should be careful in the selection of men for the profession, taking only those who possess natural ability and the proper acquired ability, and then have them put into their schools for two or three years. If this was done a great change in this respect would soon be wrought. Their own State Society, he was proud to say, has made a move far beyond that of any society in the country; that was with regard to the procurement and carrying out of the provision of the law they now have. They were now standing head and shoulders above other societies all over this country, and the profession in Ohio has a reputation it nowhere else possesses, because of this. If this Society would take a still higher stand with regard to education, it would have a greater influence.

Dr. C. R. Butler said the Society did not stand here as a school to teach all creation. They stood here as a legislative body of the profession in the State of Ohio. The principles that underlie the practice, and that pertain to the profession, should be taken up and discussed before the Society. There was much grumbling all over the country that they were not recognized as professional men. Just as soon as they deserve it they will be properly recognized, and until they are worthy they need not expect the people to accord to them the respect and honor that should be accorded to such a profession.

The work of citing cases and discussing the simple every day practice, he thought belonged more properly to the local societies. This State Society possesses a power that no other society under the light of the sun possesses; even the National Association has no more power than this. It had not done so much for the elevation of the profession as the Ohio State Dental Society has done.

In regard to their schools, if they do not amount to much it was the fault of members of the profession. They will amount to all we demand of them. The speaker closed with a reference to the Ohio Dental College, and the need of more suitable buildings for the College. He remarked if each of the members of the profession in Ohio would give but five dollars, for three years, they could put up a building in Cincinnati, or Columbus, or any other desirable point, that would be an honor to the profession all over the land, and more especially to them. [Applause.]

Dr. H. A. Smith thought, at the present time it was more desirable to raise the means to pay off the indebtedness of the College. Though the amount was not large, still the debt should be canceled, and this should be done before they talked of a new building.

Further remarks were made in regard to the Ohio Dental College, by Drs. Keely, Taft, Watt, Horton, and others.

Dr. Decamp, of Mansfield, said one remark in the essay struck him rather forcibly; that was to keep your sign in your office. Heretofore many had been in the habit of placing their signs prominently out and warranting to give perfect satisfaction or no pay, &c. This we see in newspapers, on handbills, everywhere. But there is progress; and evidences of it were seen in their Society. In reviewing the work of the profession for the last twenty years, he could see unmistakable signs of progress. Twenty years ago very few were making any active efforts to educate the profession. He would like to be a young man again, to enjoy the advantages the young men now enjoy.

After a few further remarks, the paper was, on motion, referred to the Committee on Publication.

The discussion of the fourth subject was next in order, viz.:

ANÆSTHETICS IN DENTISTRY, AND MODERN SURGERY.

Dr. Watt by request, after a few prefatory remarks, said a mistaken notion prevailed pretty generally in regard to anæsthetics; most persons supposed anæsthesia meant about the same thing as unconsciousness, or about the same thing as being deranged. During the last two or three years he had had opportunity to talk with many members of the dental profession, and they nearly all labored under this mistake; that the terms unconsciousness and anæsthesia were synonymous. And if they wish to express how thoroughly successful they have been in the use of anæsthetics, they will tell you how utterly insensible, or crazy, the patient has become when they administered them. They deem it a great success if they can make the patient so crazy that, in his sane moments, he remembers nothing about the operation, the cutting, crashing, &c. Said he, if you have complete success in using an anæsthetic, you have the patient as conscious as we each one are conscious now. And the sense of touch is as distinct and the patient as well aware of what is done as you would know it now—knows just where the knife is going, how deep it goes, and all about it. The patient, in such a condition, will not be afraid; not only is he conscious, but conscious that he will not be hurt.

This was something that was not generally believed. He did not say that an operator could not have perfect anæsthesia with some other physiological, or pathological, or artificial conditions at the same time. If there is unconsciousness with the anæsthesia, that ought to be regarded as a failure, but not a serious failure if that is all we have. But when you are undergoing a terrible operation, the satisfaction of knowing that you are alive, and what is being done to you, and supervising the operation yourself, according to your own judgment, is a great luxury.

The pleasure of this consciousness is something that never ought to be taken away when it can be avoided.

If, in addition to unconsciousness, delirium is induced, the evil effects are still greater. He would not claim that it is possible to have absolute success in the present condition of things, but it is possible in a very large proportion of instances; and if the public mind were educated, and the profession educated up to the belief that it is not necessary in operations to produce unconsciousness, then it would be more easy to have success. Patients have been taught that they must be rendered unconscious, that if they are not, they will suffer pain. Because of this, it may be difficult in some cases, to have perfect anæsthesia with consciousness.

He had used chloroform something over thirteen hundred times. In almost all cases where the patients had confidence in him, and were let alone by others, he had no difficulty in having perfect success. The patients were able in such cases to describe the operations as perfectly as he could.

He thought chloroform had more tendency to produce delirium than nitrous oxyd, but carbonic acid, and especially carbonic oxyd, has a great tendency to produce delirium, and if, from any cause you retain the carbonic acid and throw it back into the system, delirium will ensue.

The doctor then related in detail, two or three cases in which he had administered chloroform. In one case he mentioned that he administered it according to the favorite plan of a surgeon; that was to take a very thin crash towel, that was easily breathed through, and spread it over the face, upon which a drop was let fall at a time. That is a very good way to ensure getting atmospheric air with the chloroform, but the expiration is not made with sufficient force to carry off the carbonic acid from the air-cells.

He had probably seen one hundred and fifty cases in which it was used in that way, but he had never seen one case in which there was not some signs of delirium. He doubted if ever any of them saw a case treated in that way where any considerable amount of chloroform was given, that the patient was not to some extent rendered delirious. In a large majority of the cases where chloroform proves fatal, the patients are killed by carbonic acid. Another very considerable portion are probably killed by strangulation.

One reason why there seems to be a large proportion of fatal cases of this kind among dentists is, because they administer chloroform in so many more cases than other surgeons do. The percentage of deaths is not near so large as is sometimes supposed to be the case.

Another point to which he would call attention is this: whenever there is a darkening of the complexion in administering either chloroform or nitrous oxyd, there is something wrong. Neither one has a tendency to darken the blood corpuscles at all. Both have a tendency to render them a little more florid, but if in the administration of either one there is the least sign of darkening the complexion, you are smothering your patient. Many a one has thus been smothered, that has not been anæsthetized at all.

If there is any sign of suffocation, heavy breathing, or anything that indicates that the patient is not breathing perfectly free and easy, throw the exit valve open, and let the patient breathe the atmospheric air rapidly, until the excess of carbonic acid is pumped out. Let in gradually the air until the patient breathes the nitrous oxyd with straight-forward, deliberate breathing, by that time the excess of carbonic acid has been forced out of the blood, and is no longer annoying; further on in the process there is scarcely any carbonic acid given off.

Dr. Keely inquired of Dr. Watt if in the cases he had detailed, he did not think he used some other agent?

Dr. Watt replied that the probability why he succeeded, was because he *did not* use any other agent than the one he had mentioned.

Dr. Keely said it was his opinion that Dr. Watt had used some other agent, one that had been known a good many years—mesmerism. He believed if it had not been for that power exerted by the doctor over the patients in the cases related, he would not have been so successful. When that influence is brought upon the patients and they are thoroughly under its influence, an arm could be cut off without pain, not only when they are in deep sleep, but when as wide awake as any person present. He related a case in point, that occurred in Frankfort, Kentucky, in 1847. A lady who was to have some teeth extracted was thrown into a magnetic state. An old-fashioned congress knife ground down to a point, was used to cut around a bicuspid root that was difficult to get at, and though three-quarters of an hour was spent in the operation, when asked if it hurt her, she said no, that she felt more like going to sleep than anything else.

Another case was given where the patient was a girl, and the operation performed before a large audience in St. Louis, with like satisfactory results.

After a few remarks by one or two other speakers, the meeting adjourned until 9 A. M. next day.

Discussion on "The Use of Mallets in Excavating and Filling Teeth."

Dr. Harroun said he could not get along without the use of the mallet, in some form in filling. He was now using a bell-shaped mallet, with two faces. He had dispensed with all lighter mallets, using now a five-ounce mallet, and knew he could control it better than a light one. With it he could get just as light or as heavy a blow as he wanted.

Dr. Spellman was, as he expressed himself last year, in favor of the mallet. He could not think of filling teeth without it. He was fully convinced that our best operations are with the mallet. It did not seem to him that he could return to the old practice. A friend of his had said to him that he believed he would leave the profession if he had to dispense with the use of the mallet. He did not know that he was so enthusiastic in its favor as that, but he could not do without it. He used a six-ounce mallet now; had used an eight-ounce mallet, but found it too heavy; had also used one weighing four ounces, which was not quite heavy enough, and he had now settled on a six-ounce one. It probably took longer to make a filling with a mallet, but the work was better done and gave better satisfaction. He thought that that mode of manipulation that required the most time, as a general rule, will produce the best result.

Dr. Rosson was in favor of the mallet; had experimented with different mallets and now settled down on a four-ounce mallet. He used an assistant in all his operations in filling teeth. He did not use the mallet entirely; used some hand pressure in introducing the gold, and the mallet in filling and condensing.

Dr. Whinnery could not think of giving up the use of the mallet. He could make a better filling with it than he ever could before without it.

Drs. Lilly and Moffatt both expressed themselves in favor of the mallet.

Dr. I. Williams thought the use of the mallet had become so well established that arguing in its favor, seemed to him very much like a religious society he heard of some time ago offering a resolution in favor of Sabbath Schools, and urging the propriety of establishing them.

He had used a lead mallet, but did not like it very well. Was now using a wooden mallet and thought it better in every respect.

Dr. Kelsey favored the use of the mallet, but thought there was, perhaps, such a thing as an abuse of the mallet. Those not accustomed to using it might do injury with it. He had seen a case of this kind, and had in his possession a couple of molar teeth that had been absolutely split open by a mallet. A Methodist minister had come to him who had the operation performed in an adjoining county. He found the teeth split apart nearly a sixteenth of an inch. He would say nothing disparagingly of the proper use of the mallet, but simply expressed the opinion from what he had seen, that there might be an abuse of it. [The teeth mentioned by the doctor were then given by him to the members of the Society for examination.]

Dr. Herriott desired to hear from those who used the automatic plugger, with regard to their success or failure. It had been said by some that they thought it impossible to fill teeth as well by hand pressure as with a mallet. He had seen teeth thus filled that had remained in an excellent state of preservation for many years. He had a tooth in his own mouth, filled by Dr. Morehead nearly twenty years since, which was now as perfectly solid as when he filled it. He stated these facts, not that he did not consider a mallet a good thing; he could not make a good crown filling without the mallet.

Dr. J. Taft asked Dr. Kelsey whether he knew positively that the teeth he had exhibited, had been split open with a mallet while in the mouth of the patient.

Dr. Kelsey said he simply had the word of the man himself who had the operation performed. He supposed him to be a man of veracity; as he is a Methodist preacher, he thought he ought to be. When he came to him the fillings had worked out; he said they had been put in with tin foil and that the teeth had absolutely been split open with the mallet. He could not conceive how it was done; but supposed the cavity was too small for the instrument, and that the instrument had been wedge-shaped, and that by striking upon it, the teeth had been split open. The dentine seemed firm and in good condition, and there was no necrosed condition of the teeth. The man came to him quite loth to lose his teeth, but was suffering very severely and there seemed to be no remedy but to extract them.

Dr. A. A. Blount desired to add his testimony in favor of the mallet. It seemed hardly necessary to say anything on the subject. Teeth could be filled so much better with the mallet than by hand pressure, that there was no comparison. He did not think it possible that a tooth such as described by Dr. Kelsey, could be split by using a mallet, unless it had been by a sledge-hammer.

Dr. Harroun said he had used an automatic plugger until he had become familiar with its use. Whenever his assistant was engaged so he could not help him and he could not use the ordinary hand mallet, he used the automatic plugger.

He had become so familiar with it that he could control it perfectly, and could get any pressure he desired; and could save one-third of his time in doing the work, and could put it in just as solid as with a hand mallet.

Dr. Spellman said the tooth he had from Dr. Kelsey was very little decayed, and if such a tooth was split in the mouth with a mallet, the patients in that section must be a different class of people from those found elsewhere, or they could not endure any such thing. The force that would be required to split such a tooth no man or woman would endure.

Dr. C. R. Butler thought it almost useless to talk about the value of the mallet, so well established was that fact. It might probably be abused by improper use, but to speak of splitting teeth like those exhibited by Dr. Kelsey, in filling them seemed almost impossible.

Dr. Spellman inquired if the cracks were in them before they were drawn?

Dr. Kelsey: They were lying open so that I could put the instrument in the fissure.

Dr. Spellman: Did you cut around the tooth to extract it?

Dr. Kelsey: No, sir, not at all, there was no necessity for it.

Dr. Spellman remarked that there was no evidence that ever a drop of blood had been upon it. This was something rather strange.

Dr. Kelsey: I have a plan for extracting teeth so quickly that they don't bleed.

Dr. Rehwinkle thought it possible that, by an unguarded movement, the instrument, either in excavating or filling, may have entered as a wedge, and split the tooth. That only however, shows an abuse of the mallet.

He feared in their discussions they were apt to manifest a want of liberality, and were too apt to become too enthusiastic in favor of their own opinions, and too free to condemn the opinions of others.

Dr. Rehwinkle then gave a brief description of the use of the mallet, dating its first use back to 1853. His now deceased predecessor, at that time, used a little steel hammer in filling teeth. Shortly after this, Dr. Atkinson set forth the extraordinary benefit of the mallet. He could not see how dentists could get along without the mallet. They could make good fillings with the mallet where they could scarcely make them at all by hand pressure. With regard to wood, lead, or steel mallets, he thought more depended upon the skill of the hands that use them, than upon the material of which the mallet is made. If the testimony of patients could be obtained, he thought those in favor of any one of these kinds of mallet would about equal those in favor of either of the others.

Dr. Horton said it would be almost impossible for him to perform many operations without the use of it. He had found it particularly useful in performing operations on children whose teeth were very sensitive. The mean motion, he remarked, of a six-ounce mallet was not over one-sixteenth of an inch in cutting down the teeth, in which operation he used a series of chisels; whereas the mean motion of the hand in excavating, is from an inch to an inch and a half. With the mallet, an operator could chisel out in a few minutes what it would take an hour to do with the hand, with an ordinary excavator. Old people he found, objected more to the use of the mallet than children.

PROCEEDINGS OF THE SECOND DISTRCT DENTAL SOCIETY, N. Y.

Report of discussions in the Second District Society, held at the office of Dr. Ambler, Brooklyn, January 10th, 1871. Thirty-one present. The meeting was one of the most spirited that has been convened. An afternoon and evening session was held. At six P. M. the Society sat down to a most sumptuous supper, provided by Dr. R. T. Ambler, which was fully applied and appreciated.

2nd District Dental Assoc, N.Y.

The subject for discussion was: "The Method and Propriety of Extirpating Pulps."

Dr. Marvin was the essayist. His paper reviewed the subject strictly from a conservative standpoint.

Dr. Elliott says he does not feel warranted in trying to save pulps that had been inflamed. Thinks if they are once inflamed, they are reduced in their recuperative power. Caps pulps from the ages of fifteen to thirty-five. Prefer Patients of nervous sanguine temperaments. For the last eight months has kept a record. Has had uniform success. To prepare pulps for extirpation, devitalizes with arsenic and creosote. Is not afraid to leave it in the tooth indefinitely. Thinks one application will not necessarily destroy the whole pulp. Acts on the vital principle. Don't know just what that is. Does not think it acts on the circulation. Believes the pulp can be restored to its normal condition of health if partially destroyed. Admires those dentists who endeavor *intelligently* to save inflamed pulps.

Dr. Hill: Believes some pulps can be capped and saved. Would not attempt to save one less than thirty years old. Does not believe a pulp can be restored after an application of arsenic. Can not find anything laid down in books to prove the fact, and has consulted physicians upon this point, without being able to elicit any proof of its being done.

Dr. A. H. Brockway says: Nerve tissue can be reproduced. Referred to cases where teeth have been removed from their sockets, replaced, and assuming their former functions of use and comfort. Does not use *morphia* with arsenic and creosote for devitalizing pulps. Covers the application with cotton and sandarach varnish, to protect the tissues from the arsenic.

Dr. Marvin: Would add wax for a covering, giving greater security from the danger to which the process as well as the tissues are exposed.

Dr. Elmendorf: To make greater security with the stoppings named, he applies the rubber dam, to facilitate the operation.

Dr. A H. Brockway asked if any one present saved all pulps alive? Said Dr. Atkinson *thinks* he does.

Dr. Mills says he *tries* to save *all.* Has not capped a large number. Knows of three that have died. One, a young subject of a low-toned organization. Was inflamed. Was a six-year molar. Pus discharged from it. Treated it with aconite and creosote, alternating according to symptoms. Considered it restored to its normal condition, but it *expired.* Recognizes the fact that some cases are more favorable than others. Does not think because *he* failed, that an *intelligence of a higher order* would necessarily fail. Does not apply *death* to a pulp, knowingly, any more. "Does not give *life*, does not feel that he has any right to take it."

Dr. Marvin saturates bibulous paper with creosote and packs it gently over the exposed pulp. Then applies oxychloride of zinc. Thinks the paper prevents the excruciating effects of the chloride of zinc. Thinks some pulps do live after being capped. He wants to think the profession is making some advance.

Dr. Elliott looks upon the creosote as the agent of success, not the oxy-chloride of zinc cap. Saturates freely with creosote. He adds, that he believes arsenic destroys cell by cell, molecule by molecule; therefore its action could be arrested.

Dr. Marvin believes if this action of arsenic is by the continuity of molecules, its action would continue in its power to destroy. Leaves the arsenic in, twenty-four hours; if not sufficiently devitalized, renews the application until he is able to remove the whole pulp. He added, that he had treated a few pulps by capping with oxy-chloride, had no reports to make. Was not clear in his own mind, and did not know that any one was.

Dr. Hurd said that the trying to save exposed pulps alive by capping, was no new thing. He had gone over the field of experiments in this line, and had decided to destroy all pulps exposed, by the application of arsenic and creosote. Thought the nerve extirpated alive was the safest way, but it was accompanied with so much pain, patients would not submit to it. Lets the arsenic remain eight days. If it remains longer will cause periostitis. Says if the pulp is removed after exposure it is a safe operation; to cap is not. Says oxy-chloride is a cruel application, and *will* destroy the pulp. It may be quiet for a time, but a *volcano* is there, and one day it will show its power, and bring sorrow to those who have capped the pulps Says a great number of those that have been capped and heralded as successes, have been extracted, because of the mischief they have done. Says the albumenizing effect is only a theory, and is not proved in practice. May save one pulp out of ten; but the nine will scare us out of the practice if we see them again. But says the troublesome ones do not return, they go to another dentist, and complain of the practice. He extirpates and is *always safe.*

Dr. Mills said if it is proved that *one* could be saved, it was evidence to his mind, that *many more* can be, based upon the *same principles* on which the one was saved. And believed it to be our *duty* to seek the *light*, and walk in it *willingly* and *faithfully.*

Selections.

BOSTON SOCIETY OF MEDICAL SCIENCES.

Dr. Edes read a paper describing some observations of his confirmatory of Cohnheim's theory of inflammation.

Dr. Warren (he said) demonstrated to us last summer, some of the appearances seen in Cohnheim's experiments on the frog's mesentery; but time did not permit, on our part, of the careful observation necessary to see the essential point, that is the actual passage of a white globule through the walls of the vessels. The accumulation of white corpuscles inside the walls of the vessels and their appearance outside were not first observed by Cohnheim, but no one before him has described the passage through the walls. This phenomenon I was anxious to see for myself, and having obtained, by Dr. Warren's politeness, a supply of woorara, I set to work upon frogs.

I administered the drug, I think, to at least a dozen, keeping some of them twenty-four or forty-eight or more hours upon the stage of the microscope, and had occasion, once or twice, to inject the woorara for the second time. Into the lymph sacs of two I injected vermillion several times previous to exposing the mesentery, and observed many white corpuscles which had taken up the granules.

I was not, however, in any of these, at all satisfied that I had seen a single corpuscle pass through the wall of the vessels. The accumulation of them is very easily seen, and takes place, to some extent, within a very few minutes. Also, outside of the vessels, after a while, I could see irregular forms, some still changing, others stationary. A few times I saw cells of a form which answer very well to the description of those which have passed through the walls and are moving away from them. A similar form is often observed inside the vessels, where a white corpuscle becomes adherent, and is then pulled along by the current, so that a long, thread-like process is drawn out, and the corpuscle is anchored and swings like a buoy in a tide way.

Roloman Balogh, who denies the accuracy of Cohnheim's observations, speaks of the field being suddenly obscured by a multitude of white corpuscles, which he thinks arise from hemorrhage. I have also been troubled in this way, and have no doubt that these corpuscles arise from a hemorrhage, which, so far as I have seen, is, to a greater or less extent, almost inevitable. They swim over or under the mesentery, sometimes moved by the object glass coming in contact with the intestine, or some other accident. Why they should, as they sometimes do, separate themselves from the red corpuscles, is more than I can say; perhaps because coming from some vessel principally filled with them.

In fact, there seemed so many sources of deception, and the direct observation of what I wished to see seemed so difficult, that I was beginning to doubt the fact.

Finally, however, I was so fortunate as to see, within a short time, nine white corpuscles leave the vein within a limited space, and a portion of these I was able to make out, though less distinctly, on the outside. Three of these seemed to go through the same place, then I saw another disappear gradually in another place, two in another, and, finally, three near to the first three, though not all in the same place.

On the other side of the vein was a red corpuscle hanging half out and half in the vein, which did not change its position during the time I was observing it. Then a red corpuscle came down on the same side where the white ones had disappeared, and stuck flatwise to the wall. When I looked at this again, after a short interval, a little piece of the up stream end seemed caught in the wall of the vein, as if it had begun to go through. As to the appearance of the corpuscles outside the walls, it seemed that they were not round and distinct as within, but much more irregular and indistinct. When two or three had gone through at one place, it was not easy to separate them afterward. I felt no doubt, however, as to their having gone through, instead of being washed away. Amœboid movements, though I have seen them within the vein, were, in the case of the corpuscles which I saw go through, usually very slight. I did not trace any cell making its way from the wall after passing through, though, as I said, the beaker-shaped cells, with long stems, were probably doing so. I did not look very carefully for this, having satisfied myself on the more important point.

I should not have thought of offering these remarks to the

Society had not my observations and the fact that some observers deny the truth of Cohnheim's observations shown that the essential point, namely, the passage of the cells through the walls, is not a perfectly simple affair to see.

Dr. Edes also showed a preparation received from Dr. Woodward, U. S. A., intended to show the epithelium and stomata in the vascular walls.

Dr. Warren said that after a great number of experiments he had observed the entire process, from the appearance of the corpuscle floating in the current of blood to its appearance external to the vessel wall, in only two instances, although he had very frequently seen the corpuscles fixed in the wall. There were so many disturbing influences from the vast numbers of corpuscles in the field, from their rapid movement, &c., that most careful and concentrated observation was necessary to observe the entire process.

Dr. White stated that Mr. Morton, a medical student, during the past summer had watched the white blood corpuscles pass through the walls, and on one of his preparations Dr. White himself had watched one corpuscle as it passed through, and had satisfied himself that the corpuscles do pass as described by Cohnheim.

Dr. Dwight stated that Prof. Stricker considered the walls of a vessel as merely a protoplasm without openings, and that the corpuscles worked their way through this as a fish through the water.

Dr. Warren said that Recklinghausen claimed to have seen the stomata in capillaries which had been injected with nitrate of silver. Recklinghausen had also claimed to have demonstratad the existence of stomata in layers of epithelium by carefully placing the diaphragm of a guinea-pig over a cork ring and on top of this dropping a little milk; he had thus seen the globules of fat pass through the epithelial layer into the sub-epithelial cellular tissue.—*Medical and Surgical Journal.*

PRESERVATION OF ANATOMICAL SPECIMENS.

Dr. Thos. Dwight, Jr., of Boston, at the last annual meeting of the Massachusetts Medical Society, read a paper detailing some experiments to effect the preservation of dissected anatomical specimens, so that they may retain their original properties indefinitely. Such a consummation he regarded as exceedingly desirable, as it would furnish not only the teacher of anatomy means whereby he could illustrate parts of his subject without actual dissections before his class, but it would provide the surgeon with means of refreshing his memory before an operation, such as neither plates nor dried preparations can give.

He first experimented with a mixture of carbolic acid and glycerin (1 to 5), thoroughly rubbing it into the specimen (a dog's leg). This preserved the form and flexibility of the muscles perfectly, but they were of a dark color. To avoid the discoloration, retaining the preservative effect, he used various combinations of this mixture with alcohol, chloride of sodium, and nitrate of potash. It was found that great care is needed, when using the alcohol, to avoid getting so much as to harden the tissues and to prevent their flexibility; and with too little alcohol and omission of the carbolic acid, a dipocere was developed after a few weeks; this, however, he was able to check by bathing the part in alcohol.

His conclusion is, after many experiments, that for soft, muscular structures, the following mixture is superior to all others: To a mixture of 6 parts glycerin to 1 part alcohol, there is added in excess a mixture of chloride sodium 2 parts, and nitrate potassa 1 part.

This is thoroughly rubbed into the specimen, which is then rolled in a cloth wet with the mixture. In the course of a week or two the part is again rubbed with the preservative material. In a fore-arm dissected to show muscles, arteries, and nerves, preserved with this mixture, he says, "the color, though not red, is better than in the preceding specimens, and in all other respects it is almost perfect."

For preserving specimens of bone and cartilage, with membranes and ligaments attached, and for hard tumors and the like, he prefers a mixture of glycerin 7 parts, alcohol 3 parts, and carbolic acid 3 parts. This he injects into the medullary cavity of bone and rubs thoroughly into the outer surface.

In preserving soft specimens, the blood must be entirely removed by soaking or injecting water through the vessels; when the latter is resorted to, a little carbolic added to the injection is beneficial.

Any drying subsequent to the preserving process is easily prevented by applying a little glycerin.

RHODE ISLAND MEDICAL SOCIETY.

At the quarterly meeting of the Rhode Island Medical Society, on Wednesday, Dec. 21st, Dr. L. F. C. Garvin read an essay upon "Alcohol, considered as a Medicine and a Nutriment."

Dr. Garvin stated as the result of his experience in practice, that it was rarely beneficial to his patients, that it could not be considered a food, and that it simply arrested a waste of the tissues. He thought it should be classed with other poisonous drugs, and its sale restricted, like those, to druggists and apothecaries, and that it was the duty of every conscientious physician to teach the young it was a potent poison, and seek to banish its use from the homes he was called to visit It was an able paper, and a strong argument against the use of alcohol as a remedy for any disease.—*Medical and Surgical Journal.*

HYGIENIC TREATMENT OF DISEASE.

Side by side with the use of medicine, and not second to it, is the so-called hygienic treatment of disease—the study and regulation of the vital forces. The influence that the physician exercises over the mind, and through the mind, over the body; the soothing or the stimulation of the nervous power; the calming of exaltation or the stirring up of apathy; the quieting of the over-busy brain or the spurring of the flagging will; the repose of over-used powers or the awaking of suspended vital functions; the subduing of the over-sensitive skin or the stimulating of it where wan, muddy, and lifeless; the limiting of supplies to the over-fed frame or the repair of the wasted body by the proper kinds of food and stimulants; the bringing into play, and so again into existence, muscle that had become wasted and paralyzed by disease; these are among the aims the physician seeks to accomplish, and these are among the means which he seeks to employ irrespectively, but by no means necessarily, without the use of medicine; these are among the agencies which you hold in your power in the treatment of disease, and that you, each of you, exercise daily in coping with the various forms of malady, of ailment, and of constitution.—*Lancet.*

DEATHS FROM CHLOROFORM.

Another of these accidents, where "no blame is attached to any party concerned," is chronicled in the *Hartford Evening Post.* Indeed, except in the matter of using chloroform in place of the less dangerous ether, all due precaution seems to have been taken. Chloroform was given in this case to allow the reduction of a dislocated humerus. Before administering it, the surgeon carefully examined the heart and lungs and found them apparently free from disease. The testimony of physicians present is that he used more than ordinary caution.

"Dr. ——— himself stated, in answer to inquiries, that the reason why he exercised his unusual caution was because of Mr. ———'s habits as to the use of alcoholic stimulants, whereby his constitution was impaired. Dr. ——— also stated, in answer as to what he considered the cause of death, that he thought that the chloroform was the immediate or exciting cause, but that death would not instantly have occurred without a predisposing cause, such as some disease of the heart or other vital organs which could not have been detected. He also answered that deaths from chloroform were of more or less frequent occurrence, and that even this year, Dr. Simpson, *the discoverer of chloroform* [the italics are ours], had a patient die, to whom he himself was administering it, and that it had repeatedly happened in the hands of the most eminent surgeons."—*Med. and Sur. Journal.*

SPEAKING AND SINGING WITHOUT A TONGUE.

In the transactions of the Philosophical Society, published between 1742 and 1744, there is an account of Margaret Cutter, who when four years old, lost her entire tongue from a cancerous affection; but who, nevertheless, afterward retained the power of taste, swallowing, and speech, without any imperfection whatever. She not only spoke as fluently and with as much correctness as other people, but also sung to admiration, articulating with distinctness all her words while singing What is not less singular, she could form no idea of the use of a tongue in other persons. This remarkable case was brought before the Royal Society, under certificates of attestation from the minister of the parish, a medical practitioner, and another respectable citizen, well-known in Suffolk, where she resided. On account of the extraordinary character of the case, the Society requested an additional report on the subject, and from another set of witnesses, named by the Society for the purpose, and for whom they drew up the necessary questions and marked out the proper course of examination. The second report coincided with the first in all particulars, and shortly afterward the young woman was brought to London, where she confirmed the account by personally appearing, and speaking and singing in the presence of the members of the Royal Society and many other persons.—*The College Courant.*

* * *

EAU DE BEAUTE DE M. BARGASSE.—Eau de Beaute consists of: Bichloride of mercury, 80 centigrms.; camphor, 1 grm.; sulphate of zinc and solution of lead (*liquor plumbi acetici*), of each 4 grms.; rosewater, 250 grms.; and the yelk of one egg. This mixture is regularly in use (according to the *Jahrbuch fur Pharm.*) by Creole ladies for beautifying their skin. A bottle containing this mixture in the above quantity is sold for about five shillings.

* * *

NEW TEST FOR ARSENIC.—Bettendorf has found a test so delicate that one part of arsenic in 1,000,000 parts of solution may be detected, and the presence of antimony does not affect it. To apply this test, the suspected liquid is mixed with hydrochloric acid until fumes are apparent. Chloride of tin is then added, and a basic precipitate containing the greater part of the arsenic as a metal, mixed with the oxyde of tin is thrown down.—*Cincinnati Med. Reporter.*

Editorial.

PROFESSIONAL RESPONSIBILITY.

> "The fruit
> Of that forbidden tree whose mortal taste
> Brought death into the world and all our woe,"

Though not now temptingly hanging on pendent boughs in the midst of Paradise, is, nevertheless, eaten by Eve's daughters and Adam's sons; and its mortal taste yet brings death and countless woes. And what a word is DEATH! It implies all the tendencies to and all the concomitants of dissolution. It means everything that is terrible! It includes all of sickness, sorrow, sadness, suffering and sighing. It suggests all the horrors of war, famine and pestilence. Its music is the widow's wail, the orphan's cry, the shriek of the assassin's victim, the maniac's wild laugh, and the groans of the wretched and miserable everywhere. Dynasties have gone down in ruins and mighty monarchs are dethroned; but Death, "the king of terrors," still sways his scepter over our beautiful world, and Nature is blasted by the blight of his countenance. No other sovereign has mustered such forces; nor has human king achieved such conquests. He leads the "destruction that wasteth at noon-day," and commands "the pestilence that walketh in darkness." The poisonous serpent and the more baneful cup are enlisted in his service; and debauchery, riot and murder extend his victories in all directions.

As a profession we have enlisted under the beautiful banner of human health, for a life-long warfare against the armies of this dread monarch; and it is time for us to fully appreciate the responsibilities which we have assumed. But it is to be feared that we are too much like the soldiers in the earlier struggles of our late civil war, when it was supposed that a prolonged pic-nic, varied with occasional militia musters, would answer all purposes, till the battle of Shiloh, unequaled, save in a single instance, since Waterloo, aroused all to the fact that both parties were in deadly earnest. If we realize the solemn, momentous truths, but feebly set forth in our first paragraph, we will either not enlist, or having enlisted, will prove worse than traitors, if we fail to give our best and holiest efforts to the cause. If our young men can be brought to a full recognition of such responsibilities, they will not rest satisfied with their attainments when they have learned to boil rubber or to press amalgam paste or putty into decayed dental organs as well as their preceptors. They will then feel that their professional knowledge must result in longer life, holier, purer, better, because healthier life, to the race of man. Members of our profession appreciating such truths, and feeling such responsibilities, will receive as students only such as can and will make the proper attainments, while they see that the best facilities for making such attainments are afforded. Till something like this has been reached, " our glorious profession " will be but little, if at all, better than a handicraft. W.

HOW NOT TO DO IT.

A NITROUS oxyd case is reported in the January number of the *Dental Cosmos* which is somewhat suggestive. At least the report is suggestive. A young lady calling at the Dispensary of the Philadelphia Dental College to have *just one* tooth extracted, " was advised not to have the gas administered; she insisted upon it, * * the gas was then administered.—" This reminds us of a little story: A man who had imbibed too freely, with his stomach in a state of active rebellion, was approached by a stranger who sympathizingly remarked, " My friend, there seems to be a load on your stomach. I have been relieved, in such a case, by running my finger down my throat." "Look here," was the reply, " is this *my* puke or *your'n?* " Now is the *desire* of a patient, even though she be a young lady " aged 21 years," to overrule the *opinion* of a whole college? And is it likely that young operators will be taught to make their enlightened judgments the rule of action, regardless of the wishes of patients, by such an example?

The patient " became asphyxiated." And now what? Marshall Hall's ready method of artificial respiration? Not exactly.

"Insufflation." That is, the "demonstrator forced the air into her lungs a number of times by applying his mouth to hers." The young mother who saved her aged father from starvation, in the tyrant's prison, by the lacteal fluid secreted from her own blood, can not be too enthusiastically commended. The loafer who found the wounded man dying of thirst, on the lake shore, yet only offered him an aqueous excretion of his own body, would be held in everlasting execration, only that we can't believe the story. But if true, he was not a whit behind the "demonstrator," either in sense or cleanliness. Think of dosing a poor, unconscious girl with a filthy mixture so deadly that it will instantly extinguish the flame of a candle, or even of hydrogen! It will be orthodox for young practitioners hereafter to apply their mouths to the mouths of patients, if they are good looking ladies not over "21 years of age;" for that is the way they have been taught at college.

We are told "that the gas was perfectly pure." Analyzed by the professor of chemistry? No! given to other patients to see if it would kill them. Let toxicologists make a note of this new mode of analysis. Further, it is said, "The administration was properly conducted." Well,—may be! "The untoward results in the case were due to hypertrophy of the heart, inherited from the patient's mother, and aggravated by the excessive use of coffee." It was Mrs. Partington, who, in speaking of hypertrophy of the cuticle, said: "Some things is Herod Dittery and some isn't. Now my corns is inherited from my good man's stepmother, and aggravated by the excessive wearin' of tight shoes."

W.

PNEUMATIC ENGINE.

This little piece of machinery for Dentist's use has been before the profession for about one year.

We will not attempt to give a description of it here further than to say that it is operated by air put in motion by a foot-bellows. It is so arranged as to give great velocity. It is calculated for various purposes, viz: for running burs for dressing fillings. These are made of various forms and sizes, suitable for all cases to which the dressing bur is applicable. It accomplishes the work with far greater rapidity and much better than can be done by the hand bur, and with far more ease to the operator and the patient. Points can be operated upon, too, with facility that can hardly be reached by the bur in the hand. It will also with equal facility run the polishing cones and wheels of any desirable material. Small burs for opening cavities may be used with great facility. It is arranged so that the bur or drill can be operated at any angle with the shaft of the instrument, thus superseding all the universal drills that have been in use. It is arranged for working files, for dressing fillings, also for carrying slips of wood for polishing.

There is also by the same inventor, Mr. G. F. Green, a pneumatic plugger, in the use of which we have no experience and can not speak as definitely as we would wish. But the bur engine, in its various purposes, we have had in operation for about one year, and have found it so valuable that we could not consent to be without it. T.

* * *

Order of business for the Twenty seventh Annual Meeting of the Mississippi Valley Dental Society, to be held in Cincinnati, commencing on Wednesday, March 1, 1871:

ORDER OF BUSINESS.

1. Organization, at 10 o'clock, A. M.
2. Calling roll and reading extracts from last annual meeting.
3. Report of officers and paying dues.

Essays and papers relating to the subjects for discussion to be read at the opening of the respective subjects.

DISCUSSIONS.

1. Filling Teeth with Heavy and Light Mallets.
2. Treatment of Soft Tissues of the Mouth.
3. Materials for Filling Teeth.
4. Microscopy of the Dental Tissues.
5. Dental Therapeutics.
6. Anæsthesia.
7. Miscellaneous.

N. W. WILLIAMS,
E. C. SLOAN,
P. G. C. HUNT,
Committee.

THE
DENTAL REGISTER.

Vol. XXV.] MARCH, 1871. [No. 3.

Communications.

INVESTIGATIONS OF THE TOOTH PULP.

BY DR. FRANZ. BOLL, OF BERLIN, PRUSSIA.

Translated by Henriette Hirschfeld, D. D. S.

BY S. P. CUTLER, M. D., D. D. S.

At the time of these investigations, the author was a medical student, since assistant to DuBois Raymond, Prof. of Physiology in the University of Berlin.

Prof. Waldeyer, of the University of Breslau, eminent as a histologist and microscopist, says, in this splendid essay on the Mouth and Development of the Teeth, "we owe to Mr. Boll the first definite knowledge of the condition of the nerve fibres in the teeth."

The writer says, "In the histology of tooth tissue, I have directed my attention mainly to two points, the one being slightly the other scarcely at all studied." I allude to the termination of the many nerve fibres entering into each tooth. *This fact I pointed out long ago.*

"The second, which has already produced a very extensive literature, treats of the propositions of the fundamental tooth substance, the tooth pulps, and the origin of the first out of the latter."

1st. "The Termination of the Nerve Fibres. For the investigation of the nerve termination, I can recommend as most suitable, the long incisors of rodents, guinea pigs, rabbits, etc."

Here the author falls into the same error with Beale in calling the teeth of rodents incisors. These teeth are cuspids instead of incisors, though occupying the position of incisors of other animals.

His method of preparing teeth is as follows: "If we take the incisor of an animal recently killed, crack it in a vise, extract the pulp, and apply a magnifying power of 200 diameters, it will be difficult to distinguish the coarser anatomical features." "The ramifications of a very rich network of vessels is to be seen consisting in part of capillaries, and in part of more substantial vascular branches, with a layer of non striated muscular fibres, and a large number of thick dark bordered nerve fibres, ascending parallel with the longitudinal axis of the pulp, in fasciculi of six or eight or more nerve fibrils." The non-striated muscular fibres spoken of, seems to me to be a miscomprehension of their true character, as I can see no use of any such fibres in the pulp, as muscular fibres presupposes the office or function of contractility of such fibres, and that in a tissue where there can not be any possible need or use of any such contractile fibres, any more than there would be in the marrow of the bones themselves. The author speaks of delicate connective tissue fibres, which are easily recognized from the baccated nerve fibres of the pulp.

But as to there being two distinct sets of fibres, distinct and separate from nerve fibres, I have yet to see that the connective tissue fibres are readily recognized, etc., as the author says, also a cellular tissue filling up all interspaces amongst nerve fibrils.

What office or function could muscular fibres perform in a tooth pulp, as the entire function of the pulp can be nothing more or less than that of sensation and nutrition, every sentient fibril being its own factor, capable at all times of transmitting the morbid function of pain to the brain, when a cause exists.

The author's method of preparing pulps for examination, is very ingenious and important as far as it goes. If we admit the existence of muscular fibres, we must admit the existence of moto nutrient nerves, otherwise no muscular functions could take place.

It has been generally conceived that the motor nerves mainly perform the function of motion, but it certainly would be more reasonable to allow every nerve, except perhaps, it be the nerves of the five senses, to furnish nutrition to the part supplied only by them. I am not quite certain even that there is any exception at all, as nutrition takes place in cartilage, where there are neither nerves nor blood-vessels.

The author speaks of the embryonical pulp, remaining not used in this formation, *meaning, no doubt, the formation of dentine*, as having lost their spider or spindle shaped form. Right here I must beg the privilege of differing with him in this respect, that the collaginous or cartilaginous tissues that are transformed into bones, in general never have the spider shaped form mentioned, this spider shaped form being always peculiar to bones, and are the effect of ossification, hence is secondary formation or process. The author here presupposes the existence of the canaliculi and lacunæ in the soft pulp, and then their subsequent disappearance.

In primary bone cartilage there is at first no blood vessels or nerves, the only recognizable structure under the microscope being a cell structure, and an intermediate homogenious substance, nutrition and growth being carried on by osmosis, from cell to cell.

These cells or cavities are supposed by some authors to be the points where ossification begins, as the primary ossific process, then the spider legs begin to be formed, and true bone, but can not exist in the formation of dentine. The formation of haversian canals, the entrance of blood vessels and sinews, being also secondary processes, secondary bone formation being somewhat on a different plan, the final result being the same in plan and construction, first by provisional colloid or white fibrous tissue cells being improvised, mainly from periosteum, then ossification.

The author says further, "We will therefore be justified in the conclusion that there are two kinds of tubes in that part of the dentine nearest to the pulp, one part which receives the processes of the superficial cells, and another to receive the minute nerve fibrils." What data the author finds to base any such conclusion upon, is beyond my comprehension. If he has any good and valid reasons for such conclusions, he certainly has not given them in his paper referred to in this article.

Let him or any one else examine specimens of properly prepared dentine, and he will discover no characteristic differences whatever in the tubuli, no difference in structural outlines, any one being a prototype of all the balance.

Every tube arising in the crown and neck, that have their terminus under the enamel, are continuous from pulp cavity to the base of the enamel, including in this statement all branchings.

I again reiterate the statement, that whatever the character of the tubular contents, they are beyond any doubt whatever, all of the same precise nature, there being no recognizable microscopic difference in dentinal tubes, any theoretical opinions to the contrary notwithstanding.

I believe I am the first writer that ever made the positive statement, *based upon microscopic evidence*, that the nerve fibrils of the pulp, pass out through the pulp membrane, into the tubuli and to their terminations, and gave to the profession my method of investigations, and their numbers into millions, to which objections have been raised by some high in authority.

Nature always having an object in shaping all her means and purposes to ends, doing nothing without an object, certainly would not provide two sets of tubes in the dentine, where only one set was needed, there being no use whatever for any other fibrils in the dentine, except true nerve fibrils.

It seems very evident to my mind, that the author's knowledge of true anatomical relation of pulps and dentine, is certainly very limited and inaccurate.

He speaks about portions of the outer surface of the pulp adhering to the walls of the pulp cavity, whenever an attempt is made to remove the pulp from the walls when crushed in a vise, and the pieces separated.

So far as any portion of a pulp adhering in patches to the sides, when a human tooth is split open and the pulp removed from the walls, is simply an absurdity; such an occurrence never happening under any circumstances whatever. In attempting to extract a pulp from a tooth in the mouth, sometimes portions may be left in the root or roots, the portion coming away being perfect, membrane and all, not a fragment being torn from the body of the pulp and left behind, to which all dentists can testify, who have experience in this method of removing pulps from teeth. A tooth may be split in two, and the pulps also torn in two and remain in their respective pieces of the split tooth, by the mere fibrils.

When a barbed broach is plunged into the pulp of a single tooth, far up the root, and twisted around and withdrawn, most generally the entire pulp comes away with it; sometimes, however, only fragments come away, adherent to the barbs.

This is owing mainly to the fact, that in such cases, the opening to the nerve cavity is not large enough to bring away the pulp entire, or some defect in the broach, or its manipulation from want of experience.

In some of my published articles, several years since, I gave what I conceived to be the true microscopic anatomy of the pulp, and its relation to the dentine, showing conclusively that the pulp had a distinct covering or investing membrane, not however, filling the pulp chamber entirely full, but that there was an appreciable space *by means of a simple magnifier* outside of the pulp membrane, the space being traversed by the myriads of nerve fibrils, in passing through this space from the pulp into the dentinal tubuli, and all interspaces filled with a fluid. It is these nerve fibrils that hold the pulp in situ when a tooth is sawed through or split open. No one fibril from its extreme termination has much strength, but when numbered by millions, their united strength amounts to considerable, when a pulp is removed from the tooth.

In the April number of the *Cosmos*, of 1870, on page 189, the writer says, "These central processes are only distinguished from the lateral ones by their larger size." "Besides these processes already mentioned, there are others in various numbers projecting from the odontoblasts into the tubes of the dentine." "While some cells have only one, I have counted on others three and four, and sometimes even five and six dentinal projections, which gave them the appearance of ciliated cells." "They are distinguished from the two other kinds of processes, by the less granulated protoplasm and brighter lusture." "They branch off and frequently anastomose with each other." "The whole complicated tubular system throughout the dentine, is filled up by these projections."

The author speaks of different kinds of processes of odontoblast passing into the tubuli. Here I would state that these views are simply hypothesis, and not true demonstrations or revelations of the microscope, as all the fibrils that occupy the tubuli are of the same precise character throughout, and as I have for years contended, are genuine, true, sensorial nerve fibrils, and as there can be no possible need or use of any other kind of fibrils in the tubuli, we must ignore the views of the author altogether on that subject of different kinds of tubular fibrils.

"Newman's observations led him to believe that the tooth fibrils become atrophied at the periphery of the teeth of adults." So far, Newman was right, but this atrophied condition applies to the whole extent of the tubes equally perhaps, which however, is the effect of old age, increasing as age advances after middle life has been reached, say 40 years.

The cut on page 192, fig. 4, showing pulp cells, oblong from surface inwardly, with distinctly marked nuclei near their inner, and are in my opinion imaginary, and do not exist. He represents a fibril as coming out from each cell to occupy the tubuli, which is certainly not the microscopic appearance, as his pulp cells are many times larger than the projecting fibrils represented in the cut. The cut may answer well enough as a simple illustration, but as to its being an exact copy as seen under the microscope, I can safely say is not the case.

The author's histogeny of the teeth may be true to a certain extent, but to adopt it as a whole, though mainly the opinions of others would be premature, as we have not yet sufficient data before us at the present time to predicate anything like an exact theory. The idea of the whole pulp mass called odontoblast, cytoblast, or protoplasm, being subject to ossification, and accidentally leaving canals or tubes unossified, leaving a fibril of the same in situ, is certainly erroneous, unless we regard this fibril, as a true nerve fibril, independent of the common odontoblastic matrix, which is the subject of ossification, while the true neural fibrils resist ossification, or in other words, dentification, and when encroached upon in old age, the fibril refuses to undergo ossification, but perishes by absorption first, by gradual closing up around the fibrils, causing their absorption by pressure on their faces.

OFFICE NOTES.

BY W. H. SHADOAN, D. D. S.

[Continued from Page 63.]

Case 2. Mrs. H. Second right inferior molar. This was one of those cases that we always dislike. The tooth had three large cavities, situated one in the crown, one approximal, another in the buccal surface, all very large and extending into the crown cavity. The approximal extended well down to the gum, the buccal within half a line of the gum. The decay was removed, and the buccal cavity opened into the crown with a small bit of file held in the bayonet file carrier. The dentine had so far been removed between the approximal and the crown cavities, as to need nothing but to chisel away the sharp thin portions of dentine that separated them, and the cavities were ready for the filling.

The rubber dam was placed on the tooth and the one anterior to it, and a cork one inch long placed between the teeth on the opposite side of the mouth, the upper edges of the dam were held up out of the way by the Coggswell clamp, and a slide clamp adjusted to the lower edge of the dam, to act as a weight to keep it out of the way during the operation.

Method of filling. First, the filling was introduced into the pits in the floor of the approximal cavity, as in case of one reported in December number of this journal, and when the filling had progressed to the floor of the crown cavity, it was stopped in this cavity, then proceeded to fill the buccal cavity in the same way, using the same No. of gold, and the same instruments as in case one. The point of opening into the crown cavity from the buccal cavity was not so low as in the approximal, so that when the buccal cavity was filled to the point where it opens into the crown cavity, the filling would necessarily be above the bottom of that cavity.

When it reaches that point then the crown and approximal cavities were filled as one cavity, until they reach the level of the gold in the buccal cavity, and then the gold is carried over into it and all are filled as one. The instruments used in this case are for the formation of the fillings, the same as for cases one and two, after that for the remainder of the filling I usually use Nos. 13, 14 and 15, using an instrument of my own make, somewhat like No. 1, of Dr. Butler's pattern, but having a point three times as wide. For condensing the surface of the approximal and buccal fillings, No. 10 is well adapted. I used Nos. 60 and 80 gold for filling this tooth, except in the bottom which was filled with No. 4. In all such cases the cusp that is isolated by the approximal and buccal cavity should be dressed off, so as to allow the gold to overlap it, unless it is very firm and solid, in which case it may be left standing. There is room to display skill in cases like this, although it is called a simple case.

[To be continued.]

PUFFERY.

Hardly one dental journal but stands self-convicted of puffery. The term requires no explanation. In these days of cheap newspapers and universal printing, it is perfectly understood.

Is it a new invention or an improved material? Forthwith the periodicals gush in its praise, and by that sort of "come along John," which carries the crowd, every operator goes and buys. The purchase may be a fraud, or what is almost as bad, an impracticable thing, but what of that? It was commended by the dental journals, and that was enough.

The design here is not to depreciate the legitimate efforts of an inventor or manufacturer, to bring the result of his skill and industry before the world, but to show that puffery will injure more than benefit anything whether good or bad in itself. If it is good, and that can only be ascertained by the test of experience, it will work its way to the surface; if bad, puffery will not save it from condemnation, and only bring legitimate advertising into bad odor.

The specific object of these paragraphs, is to bring to the judgment of intelligent readers the wrong of puffery, whether in print or in the proceedings of societies. We submit that the appliances of every profession are not important—are hardly proper subjects for discussion; it is the ability, the experience, and the methods which they execute that should engage critical attention, and no publisher who doses his readers with recommendations of this man's instruments and that man's materials, or who even interlards the common intelligence of the profession with them, is doing his duty as a publisher.

The best newspapers will not admit a line to their columns of a puffy character. For all that sort of thing there is a department at so much per square, where every patentee, or inventor, or vendor can blow his own horn, none daring to make him afraid. And this puts the thing where it properly belongs, for when motives come to be weighed, the common sense of the majority of readers will be wondering how much the writer got for his handsome notice of Mr. So and So's new instrument, feeling quite satisfied that it was too new to have given witness of its own excellence, without that questionable recommendation. B.

GAS *vs.* CHLOROFORM.

Eds. Dental Register:—I have recently seen it stated that "among the various anæsthetics in use, experience has proved that chloroform is the pleasantest, most convenient of administration, and as safe as any." My experience and observation corroborates the statement, and yet scarcely a week passess but some one tells us he has taken gas, or he has a friend who has taken it, and they could not be induced to take it again, because it made them sick, or produced very disagreeable sensations while administered. Many of our profession advertise the use of gas, and commend it as perfectly safe and harmless, when they must know, if they read the dental journals, that the reckless manufacture and use of it are more disastrous to health and life than chloroform or ether. The trouble is, they have cried out such vengeance against chloroform and ether, and have so lumbered their rooms with apparatus for the monster gas, that they must keep it before the people, or fail for an anæsthetic. Some have learned to be "just out of gas," or to have "broke" their "retort," and "will have to send for another," but they can give ether or chloroform! Oh, consistency thou art a jewel. But these combined with more than half our professors who do not use gas, together with all our medical men who do not use it either, we can safely say that in not more than one case in five is gas given, and my humble opinion is that the bad effects and fatalities are in favor of chloroform and ether. This I should attribute to impure *nitrous oxide* arising from incompetent manufacture, or miserable method of administering it. I have no choice of anæsthetic agents, provided they are pure, for the result to the human system is the same. Now if experience has proved that gas is no safer than any other agent, why lumber our parlors with apparatus for making it, and spend time and patience, and endanger our heads by bursting retorts, and in the end produce no better or pleasanter agent?

Be honest, then, and tell the community the truth in regard to all agents producing anæsthesia, and they will thank you for it, and the profession will be all the better for it too.

L. N. HUTCHINSON.

ABILITY *vs.* COMPENSATION.

BY H. L. SAGE.

The measure of ability which one may possess, depends largely upon the improvement made of that already conferred. In one sense, then, it is natural, and it *may* be in another acquired, for all the powers of mind and body gain strength by cultivation, and thus it follows that man fulfills the end for which he was created, only by a proper use of his talents and apportunities. Success worthy of the name, can only be achieved by untiring diligence and God's blessing. Men with gifts of which the world takes cognizance, though endowed by the creator, more largely it may be than their fellows, have not been wont to remain in idleness. No one, however humble, but has gifts which need only to be polished to make them attract, in a measure at least, by the light that is in them. Even as great natural abilities, without a proper use, may amount to nothing, so one not so largely blessed in this respect, may, by earnest and persevering effort, attain to no small degree of excellence in his chosen profession. Of the whole matter, this is the sum: natural ability, whether possessed in a greater or less degree, can only be made efficient for the production of the best results, by honest purposes, resolutely maintained and carried out; by an abandonment of ease for the laborious journey, until life's limit is reached, or obstacles are overcome.

Were we to judge of one's ability by the value he puts upon his time, his services or his wares, it would not prove a difficult task. But, viewing it in the light of justice and of reason, the amount or measure of power or ability, that is necessary to *be*, and actually *is* exercised in the accomplishment of a given object, should regulate the rate of compensation for the service rendered.

Doubtless, there are cases in every one's practice, and perhaps not unfrequently, in which humanity should prompt to bear lightly upon the exchequer of this one or that one, to whom service is rendered; such will readily occur to every mind. But viewing it not in the abstract, should not the ability to perform a professional service in the best manner, if that ability develops "the harmony of a thing perfect in all its parts," or in other words, secures the best results, command a compensation commensurate with the skill employed?

But this is not all. There are other considerations which should have a bearing in the matter of charges in dental practice, for it is the latter to which more particular reference is here made. Every one knows of the harassing, health-impairing tendency of a long practice of our own specialty, owing to the confinement necessary to its faithful prosecution, the restrained and unhealthful postures attendant upon long operations, the small amount of time which the dentist can command for requisite physical culture and to other familiar causes. Is it surprising that so many constitutions yield to this continuous strain, after comparatively few years of practice?

The foregoing statements being true, I repeat, that compensation should be graduated in proportion to the ability *put forth* or the skill *employed*, the degree of success in the attainment of results aimed at, or the perfection acquired, with regard to a proper estimate of the time devoted to the object in view; perhaps, with some regard to the expense incurred, in proportion to the relative value to the patient of the service rendered; with regard to the effect produced upon the general health by the profession practiced or the business followed; in proportion to the probable or average time allowed from the latter consideration to gain a competency.

Leaving out of view the false estimates which are liable to be made, and which may result from an undue self-valuation, or an over-rating of one's ability, or of errors in judging of results, etc., (though in general, a commendable purpose to excel accompanies these failings,) it is plain, that the above principles are not carried out as they should be; and this follows from several causes—of which, the great and over-shadowing one is, the facility with which the public, taken as a whole, are misled and in the end injured, by the syren word "cheap." "Is he cheap," is the first question asked about the dentist, and not what is his reputation for honesty and ability.

With a great portion of the community, and not unfrequently those of whom we should expect better things, this word seemingly has a talismanic influence. "A low price, appeals to a low class" says Victor Hugo, and this generally speaking, is true, when applied in the practice of our profession, for this principle can not be carried out in connection with faithful well-doing.

It may be said, that a groveling and inferior class of dentists, appeal to a low class of people, through the medium of cheap advertising, etc. It is a sad feature, that the dental profession abounds with such clogs as the former.

But of the dentist who so lightly values his services; it is in the majority of cases true, that he acts according to a kind of instinct, and therefore honestly, owing probably, to a well grounded conviction of the comparative worthlessness of his services.

It is not at all complimentary to his skill or ability.

But allowing that he is in some cases conscientious in the discharge of his duties to his patients, he will then *desire* and *endeavor* to give them the benefit of the best operation, or if relating to artificial substitutes, those which, by a proper amount of skill and pains-taking, will best fulfill the indications required. Of course, the degree of success will be in proportion to the amount of ability *possessed* and *exercised*, aside from the want of care on the part of the patient, or the untoward and unfavorable natural obstacles which sometimes have a tendency to prevent permanent benefit from being realized.

Surely, he can not do himself or patients justice by a degrading submission to the cry which obtains with many, for professional services, at low figures.

There are several classes in every community—the cultivated, enlightened, clear headed and common sense portion, who can discriminate between the spurious and the genuine, and those, who, lacking these qualities, float like the froth upon the surface of the water, to be swayed by the first breeze of charlatanry that blows.

Would we have the public mind educated to the right standard? How important, first of all, that every element of progress should be seized upon and appropriated to the one permanent object—that of developing within *ourselves*, those faculties which may, by proper culture, be made to subserve the great ends for which they were given, and that we may, by reaching to the highest possible attainments in our rising profession, be enabled to place a correct estimate upon our labors for the public good.

"ARE THE MINERAL ACIDS FORMED IN THE MOUTH?"

BY EDWARD C. CHASE, D. D. S., IOWA CITY, IOWA.

In the October number of the REGISTER, 1870, I find an article reviewing and criticising a paper published by me in the May number of the *Missouri Dental Journal*, of 1870, with the above heading.

Now, I have no objection in having anything criticised which I may offer to the dental profession, through the medium of the journals, *provided*, the critic thoroughly understands what he is talking about; but I do most emphatically protest in having my article cut up, sentences taken from here and there, and made to serve an entirely different purpose from which they were originally intended; and most of all do I regret that one who is apparently unfamiliar with the new chemical nomenclature, should copy my chemical formulas—based upon the new nomenclature—and parade them in the columns of a widely circulated dental journal, with the remark that "none of the chemical formulas are correctly given," thereby not only making me appear ridiculous, but utterly ignorant of what I am writing about.

I have no disposition nor desire to enter into a controversy with the writer upon what constitutes a mineral acid. By the general acceptance of the term, all of those acids come under this head, which, when united with some base, form a compound or salt, which is known in common language as a mineral, such as calcium sulphate, potassium nitrate, sodium chloride, etc., and as these salts or minerals are formed by the action of sulphuric, nitric and hydrochloric acid respectively, upon calcium, potassium and sodium, or some of their compounds, they would naturally be classed under the head of mineral acids, to distinguish them from those acids which are formed and occur solely in the organic or vegetable kingdom.

In speaking of the formation of nitric acid, I said, "it is commonly prepared by the action of sulphuric acid upon potassium nitrate, thus: $KO_3N + H_2SO_4 = HKSO_4 + HNO_3$" nitric acid.

Also in speaking of the action of nitric acid upon the carbonate of lime, I gave the reaction as follows, which is correct: $CaO_3C + {}_2HNO_3 = Ca_2NO_3 + CO_2 + H_2O$. Imagine my surprise on being told by one so well known and universally respected, as the writer of the article referred to, that "none of these formulas are correctly given." Can it be possible that the author is ignorant of the fact that chemistry has changed within the last ten years; that a new chemical nomenclature has been adopted; that the science has been progressing, and that none but "old fogies" adhere to the old formulas?

In one place in my article, the symbol for sulphuretted hydrogen occurs. I gave it then as I do now. H_2S. This formula he says is incorrect, that it should be HS one atom less of hydrogen.

Now, a man who has studied chemistry within ten years, should know that both formulas are correct—the first represents the number of atoms, the latter the number of equivalents of the different elements in the compound, by all modern writers who have adopted the atomic theory it is written H_2S.

The old symbol for sulphuric acid is, SO_3+HO, but now it is written H_2SO_4, which explains more clearly the nature of the combination. The old symbol for water is HO, that is, one equivalent of hydrogen and one of oxygen, but at the present time it is written H_2O, or *two atoms* of hydrogen and one *atom* of oxygen, or by weight two of hydrogen and sixteen of oxygen, while in the old formula it stands one of hydrogen to eight of oxygen. It will be seen that the proportion is the same, but the formulas different. Both are correct. Now it is very unkind for one to accuse another of ignorance in writing the symbol for water H_2O, when he himself has not kept up with the progress of chemical science, or if he has, fails to show it in his writings. Also the old formula for nitric acid has been changed from NO_5 to HNO_3 that is one molecule of the pent oxide of nitrogen combined with one molecule of water, gives two molecules of nitric acid, thus: $N_2O_5+H_2O=2HNO_3$.

Thus it is, most of the formulas used a few years ago, to express the composition of the different chemical combinations have been changed; the equivalent theory has been discarded and the atomic theory adopted, so now instead of saying that the equivalent of oxygen is 8, we say that the atomic weight of oxygen is 16. This is adopted by Fowns in his last edition, the universal text-book for dental and medical students; by Roscoe, the great English chemist, and by Hinrichs and Baker, and others who stand at the head of the profession of chemical science.

To one unacquainted with chemical nomenclature and chemical formulas, it would appear by reading the review by this well known writer, that in treating the subject of the "mineral acids," I was handling something of which I was perfectly ignorant.

I will say, however, for the benefit of those who may not have seen the article in question, and therefore have not examined it for themselves, that I defy any one to point out a single mistake in any of the formulas, or in any of the reactions as published by me in the *Missouri Dental Journal.* All that I desire in this article, is to show to the public that I am right in my chemical formulas, as given in the article under consideration. As for the theory advanced in that paper, that these acids, sulphuric, nitric and hydrochloric, might be formed in the mouth under certain conditions, I leave for each one to accept or reject, as the reasoning by which I draw my conclusions, may seem plausible and consistent or otherwise.

ASSOCIATIVE EFFORT.

What a sense of weariness and dissatisfaction takes possession of the mind, after wading through the proceedings of the dental society, or after sitting out the meeting. And yet, there is no good reason for that result, for, without pausing here to either discuss or even state the causes, it is one that must inevitably flow from the present prevailing condition of dental associations.

In these days when the revelations of the microscope are common enough to no longer excite the wonder of scientific men, it seems that any pretense towards knowledge, would be made in the high light of reality and truth only, and that fundamental principles alone would engage the attention of earnest and studious men; but that the very contrary more nearly approximates to the general status is a fact that the intelligent will at once recognize and regret.

Take for instance, the discussions in any dental association, and what are they? Helps even to a clearer understanding of fundamental truth? Hardly, but sharp-pointed personalities; eulogies of instruments and materials; unkind criticisms of somebody's methods, and a vigorous ventilation of egotism—all served up in a gravy of badly compounded English and uncooked grammer. Occasionally a ray of light is thrown upon some subject, dear to the best interests of the profession, but it is soon obscured in gaseous exhalations, and remembered only as a shining point in the dusky firmament.

The association can confer benefit upon the members only in proportion as it rises above the little personal things, the mechanical details, and the petty interests of practice, and in order to reach out and aspire it is absolutely necessary that every member fob his favorite and egotistical "I think," and come down with his honest knowledge, coined out of faithful study and careful observation.

The important interests of education and legislation are too much neglected. The very existence of the profession calls for more scrupulosity of the one, and a larger application of the other. As long as mercenary amateurs and peripatetic scamps can roam the country, and while imposing upon the intelligence of the people, practice the barbarous and obsolete method of extraction as a cure for toothache, it is time associative effort was made to keep the mercenary out, or being in, elevate them to a better and in the end a more valuable knowledge. With the unconscionable scamp it may be more difficult to deal, but it has been demonstrated in Ohio, that such legislation can be had, as will protect the people against his dangerous and destructive practices, in spite of his plausibility and their ignorance.

What is greatly needed, we apprehend, is a more sympathetic and united effort in dental associations. Anything calculated to lower the dignity of the body, such as personalities that too often cheapen the proceedings, is vitiating, and will destroy all usefulness. It is with the judgment and experience of the occupant of the floor that the body has to do, and not with his tool chest and the rules of his practice; but if these are intruded upon the body, it should be the duty of the chairman to remind the speaker that the dental profession has a code of ethics.

An association of scientific men, is like a powerful galvanic battery, which sends the concentrated force through one medium for the accomplishment of a definite purpose, but if the cups in the battery shall insist upon having the medium split up into so many wires to carry their divided force, how little will be effected!

An idea once advanced should receive a careful and good natured consideration, and in order to secure that, no haphazard thought should be advanced. That which shall benefit the profession at large, and invest it with nobler purpose and purer character, should engage the attention of associations everywhere, and surely, no intelligent dentist need be told what they are. To what end does the reading, observation, and experience of the practicing dentist tend, if not to convince him of the fact that although dentistry has advanced wonderfully, yet it is hardly out of the domain of barbarism. Occasionally glimpses of the fair land of civilization may be caught through the forest, but a vigorous laying of the ax to the root of the tree is still needed, before the hardiest pioneer can hope to sit down among the dwellers in the palaces of science, and receive the homage of a grateful and admiring world. B.

SPLITTING TEETH WITH THE MALLET.

BY W. E. DRISCOLL.

At the late meeting of the Ohio Dental Society, Dr. Kelsey spoke of a case where two teeth were split by malleting in tin fillings, which was followed by a general expression of incredulity by the members of the society.

I had two cases about a year ago, that might be of interest in this connection.

The cases were quite similar, both in middle aged men; molars, with near half of crowns decayed away, with remaining portions quite strong; pulps devitalized, and in all respects, apparently, such cases as would be most proper for tin fillings. Used tin foil in cylinders, and condensed with a one ounce wood mallet, and with no more force than was agreeable to patient. Both were finished up nicely, and no indication of fracture or other undue violence could be detected.

Both returned within a few weeks after their respective operations, with crowns broken off very evenly all round near the gum. One broke off during mastication, the other "between meals."

Both parties disclaim any rough usage of the broken teeth. The roots not giving any trouble remain.

In consequence of these and other cases not quite so marked, I have since operated upon the principle that such bursting was to be carefully guarded against.

I am led to report these cases, by the surprise that was expressed at Dr. Kelsey's case; but not as an argument against the mallet, for I have been using for sometime, one of lead, weighing nine ounces, and my patients prefer it to the one of wood above mentioned, and that it condenses the gold better, a trial must convince any one.

A PECULIAR CASE.

Dr. H. Scott, of Lancaster, O., writes that he found a remarkable freak of nature practiced on the mouth of a young man of German extraction, who called at his office to have some teeth filled. On the right side above there were two perfect central incisors almost alike, thus making five perfect incisors between the cuspids. The cuspids, bicuspids, and two molars on the same side, were all normal, but correspondingly thrown back, and the third molar was wanting. The centrals both above and below were also normal, and there were no other departures from regularity. The inferior wisdom teeth were fully developed, as also the left superior. The odd tooth is simply supernumerary, but it was quite equal to either of the other centrals in size and symmetry.

A CURE FOR LOVE MELANCHOLY.

Dr. James Ferrard, of Oxford, in 1640, published the following treatment for *love melancholy:* "The regimen, or order of diet, in cure of love melancholy, differs not at all from that which is to be observed in the prevention of it, save only that it ought to be somewhat more humectative and less refrigative; not forgetting, in the meantime, those meats that by some certaine occult properties they have in them, are found to be very good for those that are sick of this disease; as the turtle-dove, the heart of a wolfe, young owles taken and boyled in the juyce of marioram, the flesh of rats, and the like. And if the party be fallen away in his body, and is now grown very thin and dry, you must then prescribe him the same order of diet, according to Avicen, as you doe to those that are hecticall."

Influence of Diet on the Composition of Bone.—M Papillon has communicated to the French Academy some experiments made on pigeons and rats. These animals were fed daily for months, with food containing small quantities of the phosphates of strontia, of magnesia, and alumina. No visible effect was produced in their health. On analysis of the bones these substances were found in them. If these substances can be made to enter into the composition of bones by an appropriate diet, there seem some grounds for hoping that we may be able to modify animal tissues by means of medicine, and this is a subject well worthy of further experimentation.

Proceedings of Societies.

NEW JERSEY STATE DENTAL SOCIETY.

Pursuant to a call signed by twenty-seven dentists of the State, the Convention met at Trenton, and formed the *State Dental Society*, October 25th, 1870.

Dr. Fowler was called to the chair, and Dr. Hanks selected as Secretary.

A committee was then appointed, to report a Constitution and By-laws for the use of the Society, viz: Drs. A. W. Kingsly, J. Hayhurst and C. S. Stockton who subsequently reported a Preamble and Constitution, which declares among the objects of this Society, to cultivate the science and art of dentistry, and all collateral branches, and to elevate and sustain the professional character of dentists, and promote amongst them mutual improvement, social intercourse, and good will.

The officers are a President, Vice-President, Secretary and Treasurer.

Three classes of membership are provided for: active, corresponding and honorary.

Active members must be graduates of some dental college. or have been in practice three years, including term of pupilage, subject to examination by the Committee on Membership

The Constitution and By-laws were adopted, and an election of officers ordered with the following result:

President—J. Hayhurst, Lambertville.

Vice-President—C. S. Stockton, Mt. Holly.

Secretary—E. F. Hanks, Rahway.

Treasurer—L. E. Reading, Trenton.

Dr. Kingsly, moved that a vote of thanks be tendered Dr. Hanks for his services in bringing us together for so laudable a purpose.

Dr. Kingsly moved that Dr. Stockton conduct the President to the chair, which he assumed with a few remarks thanking the gentlemen for the honor of presiding over their first meeting.

Professors J. Taft, of Cincinnati, and J. H. McQuillen, of Philadelphia, were proposed as honorary members, by Drs. Hanks and Stockton, respectively; also, Dr. J. S. Latimer, of New York city, as corresponding member, by Dr. Cosad.

They were all unanimously elected.

SECOND DAY.

President in the chair.

Minutes read and approved.

The Society proceeded to business, by selecting Newark as the next place of meeting, second Tuesday, July, 1871.

Dr. Reading was authorized to present a notice of the meeting to the Trenton papers.

Dr. Stockton was selected to deliver the annual address at the next meeting.

Operative dentistry being the first in order, the application of the rubber dam, was announced as the first subject for discussion.

Dr. Kingsly, by request, gave a clinic, demonstrating its usefulness, remarking, at the same time, that if he were compelled to give up all he had learned in the last ten years, with the privilege of retaining one thing, that would be the rubber dam.

The next subject was the advantages of the different methods of separating teeth.

Dr. Stockton separates the bicuspids of children, after the method of Dr. Author, of Baltimore, and advised it in all cases of frail or very soft teeth.

Dr. Hanks objected to the V shaped separations, on account of the packing of food between the teeth, causing inflammation.

Dr. Kingsley, advocated a mixed practice, according to the demand of the case, relying on his judgment.

Dr. DeLange separates incisors by packing cotton between them.

Dr. Hanks advocated quick wedging, using generally two wedges, one at the points, and one at the necks.

Dr. Stockton objected from personal experience, on account of the severe pain.

Dr. Cosad thought the quick method preferable when judiciously applied, but when carried to the extent of throwing all the spaces into one, he agreed with Dr. Frank Abbot, that the practice was villainous. After a few moments the pain subsides, leaving a numbness that is not unpleasant.

Dr. Dibble separates bicuspids by the use of the inverted V shape.

Dr. Hayhurst separates with orangewood, applied by the patient. Objected to filing incisors, on account of the unsightliness of their appearance.

Mechanical dentistry was next taken up.

Dr. Dean took the floor, and explained the method of taking plaster impressions used by Dr. Wescott, of Syracuse.

Dr. Chen fully indorsed the same.

Dr. Stockton, in very soft and flabby mouths, trims the cast in such manner as to allow the plate to rest firmly against the palatine surface.

On motion, adjourned to meet at Newark, second Tuesday, July, 1871.

E. F. HANKS, Sec.

MINUTES OF THE FIFTH ANNUAL MEETING OF THE OHIO STATE DENTAL SOCIETY, COLUMBUS, O., DEC. 6, 1870.

The Society met at 10 A. M., and was called to order by Dr. F. H. Rehwinkle, President. Roll being called, the following members were present: Drs. J. Taft, H. A. Smith, Geo. Watt, N. W. Williams, A. A. Blount, M. DeCamp, C. H. Harroun, F. H. Rehwinkle, B. T. Spellman, I. Williams, Will Taft, W. M. Herriott, D. R. Jennings, J. C. Whinnery, E. C. Sloan and H. Scott.

Minutes of the last meeting were read and approved.

Dr. Herriott, Chairman of Committee on Membership, requested all who desired membership in this society, to remain after adjournment.

Adjourned, to meet a 2 P. M.

AFTERNOON SESSION, 2 O'CLOCK.

The meeting was called to order by President, Dr. Rehwinkle, and opened with prayer by the Rev. Mr. Spahr.

Minutes of morning session read and approved.

The President then delivered his annual address, which was full of good thoughts and suggestions, and was well received.

The Committee recommended the following persons for membership in this society: Drs. W. H. Sedgwick, Granville; L. M. Gray, Zanesville; R. A. Bonifield, Zanesville; F. S. Whitsler, Youngstown; J. M. Porter, Massillon, and A. F. Price, Fremont, all of whom were unanimously elected members.

On motion, Dr. J. H. Warner, of St. Clair, Michigan, was invited to be present as a corresponding member.

Dr. D. Phillips, of Springfield, was, upon recommendation, elected a member.

Dr. Buffett, introduced the following resolution:

Resolved, That no one shall hereafter become a member of this society, unless he has a diploma, from a reputable dental college, or a certificate from the State Board of Examiners.

Which was, after some discussion, upon motion of Dr. Keely, postponed until 2 o'clock, Wednesday.

Essays being called for, Dr. Watt read a paper, subject: "Thoughts on Respiration," which was listened to with great interest, and on motion, was referred to the Publishing Committee.

On motion of Dr. Harroun, the thanks of this society were presented to Dr. Watt, for the able and instructive manner in which he presented this very important subject. It was then discussed by Drs. Taft, Watt and Spellman.

Adjourned to meet at 7 o'clock.

EVENING SESSION, 7 O'CLOCK.

Society met as per adjournment; was called to order, and business commenced by reading the minutes of afternoon session, which were approved.

Committee on Membership reported the names of Drs. D. L. Pratt, Bethesda; S. H. Harlan, Mechanicsburg; A. Spencer, Columbus, who were unanimously elected members.

On motion of Dr. J. Taft, the reading of essays was postponed, and time fixed was Wednesday afternoon; and the first subject, "Diseases of the Antrum and Treatment," was then discussed by Drs. Buffett, Herriott, Butler, Jennings, Watt, J. Taft, DeCamp, Rehwinkle and Prof. Reamy, of Starling Medical College, who interested the society at length.

On motion adjourned, to meet at 8 A. M., to-morrow, Wednesday, for clinics.

WEDNESDAY, 2D DAY—8:45 A. M.

President Rehwinkle in the chair.

Society was called to order, when prayer was offered by Rev. Mr. Spahr.

Clinics being the order, occupied the time until 12 M.

Adjourned, to meet at 2 P. M.

AFTERNOON SESSION, 2 O'CLOCK.

Called to order by Dr. Buffett, 1st Vice-President.

Prayer by Rev. D. Kingery.

Committee on Membership reported the names of L. T. Beilharz, Fremont; G. A. Curtis, Gallion; M. A. Spencer, Orville; B. F. Rosson, Troy, all of whom by a unanimous vote were elected members.

On motion of Dr. J. Taft, Dr. Buffett's resolution defining membership, was taken up and passed.

The time for essays having arrived, Dr. D. R. Jennings presented an able paper, subject: "Dental Fees," which was received by the society, and discussed by Drs Whinnery, I. Williams, Spellman, Sedgwick, Keeley, Blount and N. W. Williams, after which it was referred to the Publishing Committee.

Next was read a paper by Dr. Herriott, subject: "Artificial Dentures," which was received and discussed at length by Drs. Blount, Smith, Watt, Spellman, Bailey, Warner, Herriott and Horton, and was referred to the proper committee. The President reported the following committee to nominate members of State Board of Examiners: Dr. Geo. Keely, Oxford; Dr. L. Buffett, Cleveland; Dr. E C. Sloan, Ironton. Committee to nominate officers for State Society: Dr. Blount, Springfield; Dr. Harroun, Toledo; Dr. Watt, Cincinnati.

Adjourned, to meet at 7 P. M.

EVENING SESSION, 7 O'CLOCK.

President Rehwinkle in the chair.

Minutes of previous session read and approved.

Reading of essays being resumed, Dr. Butler presented an essay, subject: "Discipline of Head, Heart and Hand," which was received and discussed by Drs. Watt, Spellman. Butler, Sedgwick, Herriott, J. Taft, Smith, Keely, Horton and DeCamp, after which it was referred to the Publishing Committee.

Committee on Membership presented the names of the following, who were elected members: E. Chidister, Massillon; F. C. Fahnistock, Cincinnati; W. J. Moffitt, Coshocton; J. T. McCarroll, Bucyrus; S. B. Lewis, Greenville.

The fourth subject for discussion, "Anæsthetics in Dentistry and Minor Surgery," was then taken up and discussed by Drs. Watt, Keely and Rosson.

Adjourned, until 9 o'clock to-morrow, (Thursday) morning.

THURSDAY, 3D DAY—MORNING SESSION.

President Rehwinkle in the chair.

Rev. Mr. Spahr offered prayer.

Minutes of previous session read and approved

W. A. Porter, of Dalton, was reported for membership, and elected.

Committee to nominate persons suitable to fill vacancies occurring in Board of State Examiners, reported, that in view of the fact that the present members of said board are working efficiently, and harmoniously, we would therefore recommend the re-election of the retiring members, Dr. M. DeCamp. and W. P. Horton.

GEO. W. KEELY,
L. BUFFETT, } *Committee.*
E. C. SLOAN.

Which was received, and a ballot being had, resulted in the election of Drs. DeCamp and Horton, to act as members of State Board of Examiners, for the term of three years.

Committee to nominate officers for coming year reported, and time for election fixed, 11 o'clock.

Drs. Keely, Porter, J. Taft, Blount, Whitsler, Horton, Harroun, C. R. Taft, Watt, Pierce, Butler, Whinnery, Sloan and H. A. Smith, were elected delegates to the American Dental Association.

The second subject: "Uses of Mallet in Excavating and Filling Teeth," was next discussed by Drs. Spellman, Moffitt, Whinnery, Lilly, Harroun, Kelsey, Rosson, Herriott, C. R. Taft, Blount, Butler, Rehwinkle and Horton.

The hour having arrived to elect officers for ensuing year, the following were elected:

President—Dr. Geo. W. Keely, Oxford.

First Vice-President—Dr. D. R. Jennings, Ravenna.

Second Vice-President—C. R. Taft, Mansfield.

Recording Secretary—W. M. Herriott, Zanesville.

Treasurer—Geo. Watt, Cincinnati.

On motion, Mr. Pack, of New York, was invited to address the society, in regard to "Eureka gold," when he spoke at length upon the subject of "gold foils." He was followed by Dr. Butler, of Cleveland, who gave his experience in operating with Mr. Pack's preparation of gold, which was favorable to it.

Dr. Buffett explained a mode of filling porcelain teeth.

Dr. Horton presented the following resolutions, which were passed:

Resolved, That the Committee on Publication is hereby authorized and requested, to furnish one hundred blank certificates, for use of the Examining Board; that said blanks be furnished before the 1st of June, 1871, and that where present blank reads, "A law entitled a law, etc.," be made read, "A law entitled an act, etc."

Resolved, That the Examining Board is hereby authorized to audit and pay its own expenses, from funds that may come into its hands from time to time; subject, in all cases, to the approval of the State Dental Society.

Adjourned, to meet at 2 P. M.

AFTERNOON SESSION, 2 O'CLOCK.

Society called to order by Vice-President, Buffett.

Bills were presented for hall rent, reporter and janitor, and were audited, and orders drawn to pay the same, amounting to sixty-five dollars, ($65).

Dr. Hollingsworth, of Indianapolis, was then called upon to explain his mode of mounting teeth upon aluminum plates, which he did to the edification of the members of the society.

On motion of Dr. Keely, the thanks of the society were tendered to Col. E. J. Blount, proprietor of the American House, for his kindness to, and his efforts for the comfort of the members during their stay with him.

Dr. J. Taft, President, and Dr. Horton, Secretary of the State Board of Examiners, made a report, giving names of those who have been examined, and have been granted certificates to practice dentistry, under the State law, which was as follows:

The Board of Examiners beg leave to report that the following persons have been examined, and being found qualified to practice dentistry, have received the certificate of the Board, according to the requirements of the law:

1868.
July 8. Thomas M. Talbott, Galion, Crawford Co.
Dec. 2. Joseph L. Dunlap, Chillicothe, Ross Co.
" " Israel Williams, New Philadelphia, Tuscarawas Co.
" " T. W. French, Chillicothe, Ross Co.
" " J. C. Hardy, Cincinnati, Hamilton Co.
" " John L. Scott, Defiance, Defiance Co.
1869.
Dec. 8. W. P. Hall, Piqua.
" " H. M. Reid, Cedarville, Greene Co.
" " J. McKinley, Uhricsville.
" " A. R. Lord, Shelby.
" " S. J. Way, Waynesville.
" " E. J. Way, Sandusky.
1870.
June 30. Owen Thomas, Yellow Springs, Green Co.
" " J. A. VanVleck, Gallipolis, Gallia Co.

June 30. Rob't H. Boal, Urbana, Champaign Co.
" " E. Chidester, Massillon, Stark Co.
Dec. 7. J. H. Siddall, Canton, Stark Co.
" " F. C. Fahnistock, Cincinnati, Hamilton Co.
" " J. S. McCarroll, Bucyrus, Crawford Co.
" " W. J. Moffitt, Coshocton, Coshocton Co.
" " M. A. Spencer, Orville, Wayne Co.
" " G. A. Curtis, Galion, Crawford Co.
" " M. Jefferson, Cambridge, Guernsey Co.
" " S. B. Lewis, Greenville, Darke Co.
" 8. W. F. Semple, Mt. Vernon, Knox Co.
" " Robt. W. Stephens, Mt. Vernon, Knox Co.

J. TAFT, *Pres.*

W. P. HORTON, *Sec., S. B. E.*

REPORT OF THE TREASURER OF THE BOARD.

Ohio State Dental Society in account with W. P. Horton, Treasurer of Examining Board.

1870.		Dr.
May 18.	Express charges to Cincinnati	$ 25
June 10.	Express charges to Cincinnati	25
" 28.	Paid Cleveland Leader Co. for printing circulars	20 00
" 30.	Paid J. Taft, according to resolution	40 00
" 30.	Paid W. P. Horton	38 00
" 30.	Paid M. DeCamp	16 00
" 30.	Paid F. H. Rehwinkle	18 00
" 30.	Paid H. A. Smith	10 00
		142 50
Dec. 8.	Paid Treasurer State Society	233 50
		$375 00

1870.		Cr.
Dec. 8.	By cash balance	$ 25 00
June 30.	By cash from examinations	100 00
Dec. 8.	By cash from examinations	250 00
		$375 00

Respectfully submitted,

W. P. HORTON, *Treas. S. B. E.*

Which was ordered on file.

Dr. Geo. Watt, Treasurer, reported, which report being referred to Auditing Committee, was referred back to Treasurer after being found correct, and was as follows:

Balance in treasury from 1869	$ 3 12
Dues paid in 1870	150 00
From Treasurer State Board	233 50
Total	386 62
Bills paid	382 05
Balance	$4 57

A vote of thanks was tendered to Rev. Mr. Spahr.

The time having arrived for the officers elect to enter upon their official duties, Dr. Geo. W. Keely, President elect, was conducted to the chair by Drs. Spellman and Blount, where he was received by the retiring President, Dr. Rehwinkle, in a very warm-hearted and complimentary speech.

A vote of thanks was tendered to Dr. Rehwinkle for the able manner in which he had presided as President.

The President announced the following as standing committees for ensuing year:

Executive Committee.—W. M. Herriott, C. R. Taft and W. P. Horton.

Membership.—B. T. Spellman, L. Buffett, I. Williams.

Dental Ethics.—A. A. Blount, B. F. Rosson, C. Bradley.

Publishing.—J. Taft, Geo. Watt, N. W. Williams.

The following were appointed essayists for next annual meeting: H. A. Smith, C. R. Taft, A. A. Blount, Geo. Watt, W. P. Horton, L. Buffett, J. C. Whinnery.

Adjourned, at 5 P. M., to meet on the first Tuesday of December, 1871.

W. M. HERRIOTT, *Rec. Sec.*

Selections.

MEDICAL EDUCATION.

BY J. HENRY CARSTENS, M. D.

Some of the medical journals, as well as some professors in their introductory addresses, have lately written and said very much about medical education, especially in reference to the value, comparatively, of clinical and didactic instructions. Some have tried to depreciate the usefulness of clinical teaching, saying that the student is fascinated by this kind of instruction, and impressed with the idea that by this means he can acquire more rapidly and easily, a perfect knowledge of the art and science of medicine, and that the student therefore neglects the primary studies, and devotes most of his time to the hospital and dispensary. There is some truth in this, undoubtedly, but like almost every other question, it has two sides. We do not think that a college can be censured more for paying special attention to the clinical advantages that it offers, than a college that prides itself on its thorough didactic instruction.

The fault of an insufficient education in medicine doubtless lies in the lack of the harmonious co-operation of the different medical institutions of this country. Why are all efforts to raise the standard of medical education failures? What must the impression be on the people at large, of this want of unison in the medical profession? With very few exceptions, the different colleges require three years of study, with two courses of lectures. Why not require three courses of lectures? The first year that is spent in a physician's office is often so much time lost; there are few practicing physicians who devote time to the student, and take pains to instruct him. But there are such noble men. We have known students who knew more after studying two or three years with such a man, than most graduates do. Any one, whatever may have been his previous history, can show a certificate that he has studied three years, and signed properly by an M. D.

But the principal aim of the profession should be to systematize the study of medicine. A first course student listens to all lectures, from anatomy to ophthalmology. It is almost impossible to study anatomy, and all the other branches of medicine, during one course of lectures, to any advantage—dissecting one hour, while the next is spent with an ophthalmoscope trying to detect minute changes that a retina has undergone. Still, at present, this is the rule in most colleges ; the junior student, as well as the senior, attends all the various lectures and also the clinics.

During the first course a student should only study a few, and those the fundamental, branches of medicine; anatomy, physiology, materia medica and chemistry. To these his whole time ought to be devoted. At the end of the term he should be examined, and if he passes he may proceed with the remaining branches; but if he fails he should again commence at the beginning. The second course should be devoted to didactic instruction in practice of medicine, surgery, obstetrics, etc. At the end of this term another examination, as before, should take place. The third course should be principally clinical : clinical surgery, practical midwifery, dermatology, practical instruction in the use of instruments, as the ophthalmoscope, laryngoscope, etc., auscultation and percussion. With such a course of instruction we think that a person with only ordinary reasoning faculty could safely be intrusted with the health and life of the community.

But even now, while only two courses of lectures are required, decided improvement can be made by having the class separated. In the first the fundamental branches are taught, and in the second course the practical branches, with clinical instructions. But without thorough clinical tuition no student ought to receive a diploma.

We ask those who try to depreciate the value of studying diseases at the bedside, if they would risk the lives and health of their children in the hands of physicians who acquire their knowledge from books alone. Take, for example, hip joint disease, which can only be distinguished by a practiced eye in its early stage, and this is the time to begin treatment, if you want to avoid its fearful results. But how few young physicians can take a diagnosis of this disease in its very commencement. Take disease of the eye, requiring ophthalmoscopic examination ; who can make a correct diagnosis in his first effort? Then how difficult is it to distinguish skin diseases. Auscultation and percussion are only of value to him who has practiced on a diseased person as well as on a healthy one. How many eyes have been lost, how many patients sent to the grave by this lack of instruction on the part of the physician while a student.

It is certainly of no use for students to see many patients, and be merely told by their professors that one is a case of bronchitis and another typhoid fever; the students ought to be called upon in turn to make their *own* diagnosis, and then be thoroughly questioned in reference to differential symptoms, treatment, etc. By this means a student learns how to examine a patient; why, we have seen graduates who could not question their patients so that a correct diagnosis could be made. They ask one question about a certain organ or part, and then about another, and then again commence with the first, and so on.

But enough for the present. Let another effort be made; let the professors encourage the junior students to study only the primary branches, and at the end of the term pass an examination. If they pass satisfactorily, let the examination on these subjects be omitted at the end of the second course. By this system we think that a higher standard of medical education would be gained, and it would pave the way for the formation of classes, as above indicated.

OFFENSIVE BREATH.

BY J. A. MUNK, M. D., LINDSEY, O.

The popular term, "bad breath," is a very significant expression for this unpleasant condition. What is more offensive to the acute olfactory sense than a fetid breath? It engenders a feeling of aversion and disgust, which is not readily overcome. It serves as a means in many instances of estranging intimate friends.

A consideration of this subject may not properly belong to medicine; yet it deserves the physician's attention, for he is frequently applied to in these cases for relief.

Naturally, the breath of a young healthy person possesses an agreeable flavor and sweetness; but which with age becomes lost. In the majority of cases, pernicious habits or disease occasion a tainted breath. The most commonly indulged evil practices are the use of ardent spirits and the odious weed, tobacco. It not only obtrudes uncomfortably upon associates, but they are imminently prejudicial to the physical well-being. Through their narcotic and poisonous properties they exert a very deleterious influence upon the nervous system. The nice sensibility of the nerves becomes blunted in degree, even to a disregard for cleanliness and refinement. It is utterly impossible for an inveterate chewer or smoker to retain a beautiful set of dentals, much less a pure breath. Great care should be exercised in keeping the mouth free from all extraneous substances. After each meal, a quill or ivory toothpick should be used to remove any aliment that may have become lodged in the teeth during the process of mastication, and the mouth rinsed with tepid soft water. Every night, previous to retiring, the teeth should be cleansed with a soft tooth brush and water. As a rule, tooth pastes and powders should be eschewed as harmful agents. If a dentifrice is desired, a little fine toilet soap, or charcoal reduced to an impalpable powder, may be used. This is all that will be required. Decayed teeth are a very prolific source of mephitic breath. As soon as it is ascertained that a tooth is affected, it should have immediate attention, and receive the services of some competent dentist to extract, fill, or treat in any manner its condition demands.

Carious teeth are often the source of serious functional and general disturbance. It sometimes occurs that persons with a number of defective teeth are constantly ailing with either gastric or nervous troubles, when, upon a removal of these unsound members, all the unpleasant symptoms promptly disappear.

It may be well to give a word of caution in regard to diet; by irregularities in eating, the digestive functions become impaired, and for want of proper digestion, the aliment undergoes zymotic change, during which process noxious gases are evolved, and cause a foul breath. When cases arise from disease, it is either of the stomach, lungs, or the respiratory passages. In these cases a physician should be consulted at once; for with proper medical aid, patience and perseverance, the patient can hope to obtain relief. Many substances are in vogue to sweeten the breath, and to disguise any unpleasant scent, as of spirits, tobacco, etc. With the vulgar it is customary to use some pungent aromatic, as cloves, etc., but this savors too strongly of the drinking bar to be used by any but tipplers. The following used as an occasional mouth wash, will be found excellent: Take Chlorate of Potash, three drachms, dissolve in eight ounces of rose or other medicated water. As an article with which to flavor the breath, there is probably nothing equal to the Wild Ginger, (*Asarum Canadensis*). It is used by chewing a small portion of the root, or if in powder it can be made into a lozenge. It imparts to the breath an agreeable spicy aroma, and is in every respect *a la bonne heure.*

LANCING THE GUMS.

Dr. E. Bentley, U. S. A., says: Lancing the gums is a process which is becoming too antiquated for the present generation. I know of physicians who have been five or ten years in practice, and have never scarified the gums of a teething child. It is probable that very few who practiced it when it was in common use, and who had a fair opportunity of observing its great utility in many instances, have abandoned it. The desuetude is an innovation not founded on experience. It attaches mostly to the younger members of the profession who have grown up under the influence of the popular prejudice against bleeding, mercury, and "mineral poisons," engendered by homeopaths, hydropaths, eclectics, botanics, magnetizers, spiritists, and charlatans and buffoons of a thousand species.

It is easy to make out a case against the gum-lancet when parents are in the seat of judgment: "The poor, dear child;" "the inflamed and tender gums;" "the danger of bleeding to death;" that "horrid lancet:"—such arguments soon settle the question. Policy often goes further than conscience with the physician. He will lose favor by enforcing his judgment. Hence he yields to the situation, and at length conforms his creed to his practice.

There are three objections to scarifying the gums: First, the pain and struggling of the child; second, the increased difficulty of teething arising from the cicatrix; third, the danger of hemorrhage.

As for the pain, it is trifling, and unworthy of notice.

The consequent relief is much more than sufficient to counterbalance the pain. Often the itching of the gums is so intolerable that the impression of the lancet is agreeable. I have known a child to close its jaws on the instrument and press it into the gums with evident satisfaction.

The struggling of the child, and its fright, are of greater importance, especially if the operation be bunglingly done, as is often the case. There is but one right way of doing it. Take your seat behind the child as it rests on the nurse's lap in a proper light, and placing your knees toward its back, draw its head down between your knees. Let the nurse hold the infant's hands. What with your knees and your two hands, the head is now completely under your control. Grasp it between your two palms, and as it opens its mouth to cry, thrust one or two fingers of the left hand in its mouth to keep the jaws apart, and use the lancet with the other hand. By this method you have the most perfect command of the head, and can cut exactly in the spot and to the extent you desire. I am thus precise in the description because I have so often seen the operation so awkwardly undertaken as to fail of its purpose, and to endanger serious wounding of the child's mouth.

Some writers have recommended cutting down on the outside of the gum, toward the root of the tooth, and not on the ridge, in a perpendicular direction, toward the crown. If the gum be much swollen, and the tooth deep, this plan may answer.

In some cases it is sufficient simply to relieve the distension by scarifying, without cutting down to the teeth. The loss of a few drops of blood in this way is often eminently useful, aside from any topical effect.

The second objection, viz : the cicatrix, is scarcely worth a serious refutation. When we consider that the tooth effects a passage by inducing absorption of the gum through pressure, it is evident that absorption will be more easily accomplished where there is a cicatrix than where the tissue possesses all its original vitality and power of resistance. Repeated incisions, therefore, have an effect opposite to that which the popular mind ascribes to them. By weakening the vitality of the tissue they facilitate the exit of the tooth.

Besides, the idea of induration, as attached to the cicatrix, is probably fallacious. I have never observed any induration of the gums, after scarification—perhaps because they heal so speedily, and are kept constantly moist.

Finally, we come to the most important objection—the danger of hemorrhage. This is of rare occurrence. In an experience of more than forty years, during which it has always been my practice to use the lancet freely in dentition, not a single instance has occurred to me. I have heard the same testimony from my father, after forty years of practice, in which he never hesitated to lance the gums of a teething child.

Nearly forty years ago, this subject was canvassed in the Medical Society of Wilmington, Delaware—of which I was then a junior member. My recollection of that discussion is distinct. Eight or ten physicians were present, some of whom had been many years in service. The practice of cutting the gums was then universal. And yet, not a single case of fatal or dangerous hemorrhage, from lancing the gums, had occurred to any one of them, and only one case had come within their knowledge. A child named Collins, the patient of a physician then deceased, had been visited, in consultation, by several of those present, and died after a number of days of hemorrhage.

But the experience of others is not uniformly of the same tenor. My friend, Dr. Hatch, of Sacramento, in a paper read before the Medical Association of that city, mentions four cases of hemorrhage following incision of the gums, which have come to his knowledge—all of which proved fatal. In these cases, however, there was pre-existing disease which, in all probability, would have destroyed life, had the gums been left intact. Further, they had been treated with calomel, until the peculiar effect of that agent on the blood appeared to be fully established. Dr. Hatch infers that the operation should never be performed on anemic children, or on those whose appearance might lead to a suspicion of the hemorrhagic tendency; and that it should be particularly avoided in patients under the influence of mercury.

The experience of Dr. Hatch is exceptional, and not to be accepted as a guide, in regard to the frequency of hemorrhage from this cause. It is extraordinary that so many cases should have fallen under the observation of a single practitioner. There have been deaths from hemorrhage resulting from the extraction of teeth—perhaps as large a proportion as from cutting the gums. The same may be said of many other minor operations. But such extraordinary accidents are not allowed to deter us from operating, when the occasion presents. I therefore conclude that the irritation of the gums from teething is so much more dangerous, under all circumstances, than the cutting of them with the lancet, as to justify the operation, without regard to consequences.

STYPTIC WOOL.

Dr. Ehrle, of Isny, prepares this by boiling the finest carded cotton wool for half an hour or an hour in a solution containing four per cent. of soda, then thoroughly washes it out in cold spring water, wrings and dries it. The wool is thus effectually purified, and is now capable of imbibing fluids uniformly. It is then to be dipped two or three times in fluid chloride of iron diluted with one-third of water, expressed and dried in a draught of air, but not in the sun or with the aid of high heat; finally it is carded out. Thus prepared, it is of a beautiful yellowish-brown color, and feels like ordinary dry cotton wool As it is highly hygroscopic, it must be kept dry, and when required to be transported must be packed in caoutchouc or bladder. Charpie may be prepared in a similar manner, but, on account of its coarser texture, is not so effective as cotton wool, presenting a less surface for producing coagulation. When the wool is placed on a bleeding wound, it induces moderate contraction of the tissue, coagulation of the blood that has escaped, and subsequently coagulation of the blood that is contained within the injured vessels, and thus arrests the hemorrhage. The coagulating power of the chloride of iron is clearly exalted by the extension of its surface that is in this way effected. The application of the prepared wool is not particularly painful, whilst, by sucking up the superfluous discharge, and preventing its decomposition, it seems to operate favorably on the progress of the wound. The unpleasant secondary results that have led many practiced surgeons to discard the use of the perchloride of iron do not occur with the wool when it is properly made and applied. In cases of wounds where the bleeding proceeds from large and deep-seated vessels, it may be used as a compress, a bandage being applied over it.

or the wound may be plugged with it. It may also be employed with advantage in cases of profuse suppuration, to imbibe the discharge and purify the surface. He recommends that a small portion should be given to every soldier on going into action.—*Lancet.*

THE PHILOSOPHY OF CHILLS AND FEVER.

In a review of Dr. Salisbury's theory of intermittent fever by Dr. John W. Wier, Edwardsville, Ill. (*Boston Med. and Surg. Journal*), the philosophy of chills and fever is thus laid down:

A person exerts himself during a warm day; a cold wind comes on, or night-fall, while he is in a profuse perspiration, and without nourishing food or additional clothing he loses a large supply of animal heat. This is repeated daily for a time; the extremities of the exposed person become cold, he loses vitality, his heart beats feebly, and he sinks into a chill; he is *really dying*, and if there is not vital power enough left, death ensues; if life continues, however, a series of phenomena take place, which, by appropriate treatment, may result in recovery. He does not believe that intermittent fever is produced by any miasmatic poison; but is the result of sudden and repeated draughts of animal heat from the system, which feeble persons can prevent only by suitable clothing, nourishment, and tonics.

THE DISCRIMINATION BETWEEN SYPHILIS AND SCROFULA.

F. F. Maury, M. D., Surgeon to the Philadelphia Hospital (*Med. and Surg. Reporter*), in a lecture on "Infantile Syphilis," states that the parallelism between congenital syphilis and scrofula, when closely traced, so approximates that no human being can discriminate between them. He also believes that the unfolding of the next twenty-five years will establish the identity between so-called scrofula and inherited or quarternary syphilis, and this pathway leads him to the broad field of legalized prostitution, of which he is an advocate.

A REVERSION SPECTROSCOPE.

An important addition to the resources of spectrum analysis has been made by Zollner's invention of a reversion spectroscope, by which extremely small changes of refrangibility, and consequently comparatively slow motions of a star or sun-flame, can be detected. It consists of a spectroscope in which, by reflection, the spectrum of a source of light can be superposed above a reversed spectrum of the same source; so that if a white flame containing sodium be viewed, there will be seen in the upper part of the field a sodium line with the blue end of the spectrum on the one side, and underneath it a sodium line with the red end of the spectrum on the same side. The two bright lines may be made to coincide exactly by an adjustment; and, if any change in refrangibility takes place, the motion of the line is doubled, and is also more exactly measured, because it is referred to itself as a standard.—*English Mechanic.*

A WAR VICTIM.

We regret to hear of the death, at Versailles, of Dr. Brewster, an American dentist, who long practiced in Paris, and attended many of the crowned heads of Europe. A few years ago he retired in favor of Dr. Evans, and took up his residence at Versailles, where, notwithstanding the American flag floating over his house, a number of Prussian officers were quartered upon him. Dr. Brewster died on Thursday, Dec. 15th, in a fit, doubtless brought on by the excitement and trouble in which he has been living for the last few months.—*Lancet.*

HEREDITARY DISEASES.

Sir Wm. Jennier thinks that where both parents are tubercular, the diathesis is intensified in their offspring. The same he believes to be the case generally in the hereditary transmission of disease. The father, he thinks, transmits a morbid tendency with more certainty than the mother does.—*Lancet.*

Editorial.

MISTAKEN IMPRESSIONS ON NITROUS OXYD.

In the January number of *The Cincinnati Lancet and Observer*, the leading communication is from the pen of W. W. Dawson, M. D., of Cincinnati. It is lengthy, interesting, and shows commendable research. In the main we like it, but must call attention to an obvious error in its teaching, which we the more cheerfully do, as Dr. D. and the writer are natives of the same hazel thicket—a most delectable place, where the trees grow a little taller, the sun shines brighter, and the birds sing clearer than elsewhere.

In speaking of NITROUS OXYD, Dr. D. says: "Its safety depends on the fact that persons are kept under its influence but for a moment. Protract its administration as we do chloroform and ether, and its victims would far outnumber those of all the anæsthetic agents combined. No surgeon or physician who has stood by and witnessed a dentist give nitrous oxyd for the extraction of teeth, would be willing to hazard any individual under the full influence of this gas, for an operation that would last *one half minute.* The appearance of the person while inhaling, as he is pushed beyond the point of excitement, to a condition of insensibility, is fearful; the pulse is quick, the breathing labored, the vessels of the face and neck are turgid, the face assumes an ashy hue; indeed, the whole aspect is one of danger."

The above is a graphic picture of a series of rather formidable symptoms, and probably falls even short of the reality, as seen by Dr. D.; but as we have spent more months than he has minutes in the investigation of nitrous oxyd, it will not be considered presumptuous if we "show unto him a more excellent way."

For nearly three-quarters of a century, experiments with nitrous oxyd, were conducted mainly by adventurous mountebanks and self-styled "professors," who administered to the patients their own breaths and something else, the composition of which was unknown alike by professors and victims. Even the experiments of Sir Humphrey Davy are almost valueless, from the fact that in all of them the breath was re-inhaled with the gas. Even as lately as the fall of 1866, the "Colton Dental Association" practiced this method, giving the gas from rubber bags; and not far from this time, Mr. Colton, in an article published in one of the dental journals, advocated the re-inhalation of the breath, as necessary to complete anæsthesia. As far as we know, this mode of administration was then in very general use.

With such administration, the symptoms detailed by Dr. D. will be often observed; but it is *carbonic acid*, and not nitrous oxyd, that causes them. And it has been a view from this standpoint, that induced Dr. Richardson to make the remark quoted by Dr. D.; for it is true from no other. Richardson's remark is as follows: "It can not be too widely understood, that protoxyd of nitrogen, is not an *anæsthetic*, in the true sense of the word, but an *asphyxiating agent; that its effects are identical with those of poisoning by carbonic acid gas.*"

It is not likely that a greater amount of error could be embraced in so short a sentence, as the oxyd *is an anæsthetic*, and will *revive an asphyxiated patient more promptly than atmospheric air.*

But Dr. D., or some one, may say that these symptoms have been seen where valved inhalers have been used. This is true; and carbonic acid is the agent producing them still. During the first few inhalations of nitrous oxyd, carbonic acid is given off in great abundance, so as to almost smother the patient when proper precautions are not observed. The exhaling valve is nearly always far too small; and when the expiration is retarded in this, or any other way, much of the carbonic acid passes back into the circulation. A disposition to economize gas, and a belief (from erroneous teachings by those who should have known better), that atmospheric air must not be admitted to dilute the gas in the air cells, result in the poisoning of many patients by the return of carbonic acid to the blood, in obedience to the law of gaseous diffusion. In this way the symptoms may be almost the same as if the gas were administered in connection with the breath.

But if the operator will bear these facts in mind, and will admit fresh air, as freely as wanted, whenever the breathing is in the least disturbed, it will be but a short time till the patient will prefer the gas to the atmosphere, and his breathing will be perfectly tranquil, and in a few minutes he will be wide awake, even while breathing nothing but the nitrous oxyd; and through all there will be nothing like asphyxia or suffocation, and the heart's action is changed only by mental emotion, if changed at all. It has been breathed many times for fifteen or twenty minutes, without any change in the pulse.

We have administered the gas almost daily, and often many times a day, for months, without seeing the complexion darkened, the face or neck turgid, or the muscles rigid. In a majority of the cases the patients were tranquil throughout, not delirious, and often completely anæsthetized, while perfectly conscious.

If, however, sufficient attention is not given to the expiration, and carbonic acid is allowed to pass over, there will be muscular contractions and delirium, with darkening of the complexion, in short, the formidable array described by Dr. D.

It is the practice of many to prop the mouth open with a cork, or a wooden block, before administering the gas for extraction; and, if the patient is to be drugged as above, with carbonic acid, this precaution is, perhaps, necessary, as the flexors will be generally found rigidly contracted; but in the light of science, the practice is both barbarous and unnecessary. When pure gas has been properly administered, the under jaw will be perfectly manageable. We never prop the mouth open, and find no occasion to do so.

But this is too long. Again we repeat, *if the complexion has been darkened, impure gas has been used, or the patient has been smothered.* W.

THE
DENTAL REGISTER.

Vol. XXV.] APRIL, 1871. [No. 4.

Communications.

ADDRESS TO THE GRADUATING CLASS OF OHIO DENTAL COLLEGE, MARCH 1, 1871.

BY DR. F. H. REHWINKLE.

Gentlemen of the Graduating Class:

On occasions like the present, it is, I believe, customary for the one chosen by your faculty to deliver the valedictory to begin by expressing regret that the choice had not fallen upon one better fitted for the duty—one practiced in moulding thought into flowing and eloquent language. Gladly would I make an exception to this rule, but I am compelled by candor to acknowledge myself guilty of a weakness in accepting this honor, instead of yielding to my first impulse, which was to urge upon the gentlemen of your faculty the expediency of selecting from among the "shining lights" of our profession one who could have better honored this, the twenty-fifth commencement of our college.

Regrets at this late day being useless, be pleased to accept a few thoughts and ideas suggested by this, to you, momentous event. It is not my purpose to weary you with a vain attempt at eloquence. I belong not to the favored few at whose side "little angels stand" whispering words at once thrilling, flashing, and burning with the fire of eloquence. I *may* have wooed them, but failure is my record. Whatever I offer you, therefore, can only be said in a plain common sense way, clothed in homespun garb.

Your being assembled here to-night brings vividly to my mind the scenes of years ago, the time when I with others occupied your position; it brings back, too, the high hopes and aspirations, sanguine expectations and earnest resolves.

Gentlemen, you have arrived at a crisis in your lives; and it will depend as much upon your moral strength of character as upon the possession of the requisite professional qualifications, whether you will rise above mediocrity and to eminence in your chosen avocation, or whether you will merely occupy a space. You have made choice of a profession which will task all the strength within you; a field of labor at once complicated and without limit.

As a specialty of medicine and surgery, operative dentistry involves a necessity for a general knowledge of the whole science of the healing art. I call it a specialty of medicine and surgery. Thirty or forty years ago this would have been deemed presumptuous. Its relations to medical science had not then been so universally studied, and were understood but by comparatively few. To the noble and energetic spirit of these latter, combined with their successful efforts, *this* claim stands to-day a fact, accomplished and undisputed, and our profession is now elevated to its proper position and its rights recognized. To those who have been chiefly instrumental in accomplishing this end, we owe all thanks. In view of these things it follows that the duties that you must assume on entering into actual practice are commensurately great, and your qualifications should be unquestionable. As a dental surgeon you must not only be *thoroughly at home* in the knowledge of the anatomy of the head and adjacent parts, but should have a perfect understanding of anatomy as a whole. You can not be a good pathologist without being well versed in physiology, whilst without chemistry you would be like a mariner without a compass. In short, my young friends, your professional education must be very thorough. Added to this you will require a high degree of mechanical aptitude, combined with manipulative skill, to perform difficult and intricate mechanico-surgical operations upon the living and sensitive tissues of the mouth.

"Are you well qualified" for these duties and responsibilities?

Have you acquired the necessary proficiency in all the various departments of science as connected with your profession, and have you taken the initiatory lessons in the collateral branches appertaining thereto?

Your faculty answers for you in the affirmative, and gives you an indorsement which speaks well for your attainments. We can not ask a better guarantee than that of your being graduates of the Ohio Dental College, and worthy pupils of able masters.

This pleasant event which calls us together, with many of the elder members of our profession, must stir up memories of "Auld Lang Syne," and perhaps regret, aye, envy may mingle with their thoughts to-night. Consider, my young friends, how natural it must be for our old and honored pioneers, some of whom are, per chance, within the sound of my voice, to institute comparisons with the *then* and *now*. Think for a moment what a rough and thorny path they had to travel. There were no colleges of dentistry for them. No associations or facilities for the exchange of thought, ideas, and modes of practice. Isolated, each one, with what now appears to us but crude preparatory instructions, obtained in the office and laboratory of their preceptors, and this almost under the seal of secrecy. No dental literature, excepting a few collections of instructions appertaining mostly to the mechanical part of dentistry. Treading wearily and alone, yet ardently hoping and laboring to bring about a better state of things. That their labors have been crowned with abundant success, witness this night's exercises. Do you, then, think it strange that their retrospection to night should be accompanied by wistful regret that such facilities for acquiring a professional education were never within their reach? Is it a matter of wonder that they should almost envy you your good fortune in being the recipients of all the patiently gathered and carefully assorted facts, and of the concentrated and purified results of an experience of years? Well might they ask, both of you and me, do you fully.realize and appreciate the opportunities and privileges which the present age offers to the disciple of art and science?

Indeed, we might all of us ask, do we sufficiently estimate the privilege of living in an age so wonderfully progressive in scientific research and discovery? So stupendous in its works of art? Distance has been annihilated, electricity utilized by the power of the mind and the application of science through cables, which ere long will girdle the whole earth, acquainting us with events transpiring in other parts of the world, with thousands of miles of ocean intervening, in advance as it were of their actual occurrence. Rivers are spanned with bridges, which in their construction are marvels of art and science. Mountains are perforated to yield a common highway for commercial intercourse, nation with nation, all the results of science, so tremendously grand and sublime that half a century since a mere conception of the idea of a possibility of such completion would have subjected the originator to the charge of madness, if nothing worse. Contemplating all these things, one is *now* almost tempted to believe that the word impossibility will eventually be expunged from the scientific dictionary.

Having finished and brought to a successful close the prescribed course of lectures, and having passed through the ordeal of a searching examination by your faculty, with credit to yourselves and honor to your teachers, and being made "Doctors of Dental Surgery" (which means that you have not only mastered all the science appertaining to your department, but that you are competent to teach the same to others), you might naturally infer that your studies are finished, and that nothing remains for you but to carry well digested theories into practice. My dear young friends, you are perhaps ready and well prepared to *enter* the great university of practical life, in which, your diploma will be but like your matriculation ticket, obtained on entering upon your first course of lectures in this college. All your time spent in the dissecting rooms, laboratory and lecture room, together with the knowledge gained there, will be to you but practical lessons, showing you how to systematize study, and conduct investigations of details to the best advantage.

"To live, is but to learn."

Your future success as dentists, your standing among professional brethren, and your position in society, will be advantageously promoted, by a diligent course of self improvement. I know full well that to impress this upon your mind, your faculty have spared no pains. You have learned here, if not elsewhere, the meaning of education, and that it is not the work of a year, or years—but of a lifetime. Let us indulge therefore in the justifiable hope, that you will press forward, and keep pace with the times—to pause, is to go backward. There is no such thing as standing still. Let your motto be: "Onward and upward."

Forget not, that in receiving a diploma from this school, you incur high moral obligations, so to exercise and cultivate your talents, that you too, in time, may contribute your share to the common stock of knowledge. Bounteously you have received, freely and cheerfully ought you to give. See to it, that you keep bright the fame of your "alma mater," and add to the lustre of her alumni.

The advantages of associations and combined labor, you will soon learn to appreciate, especially will this be the case, if your future location is more or less remote from the great centers of communication, and when personal intercourse with your more experienced professional brethren is restricted to a few accidental meetings with one another; dental societies will then become as necessary to meet your intellectual wants, as are our depots for the supply of those of a material nature. You can not afford to be absent from such meetings. Your loss of time and outlay of money will be amply repaid by the knowledge you will gain from the varied experience of your confreres. You will be benefited by listening to, and taking part in their discussions. Flint and steel are passive in themselves, but by clashing them together fiery sparks are drawn forth; even a couple of dry sticks, nothing in themselves, being rubbed vigorously together may set your house on fire. The best intellect, isolated and left entirely to itself, must of necessity contract, become one sided in its views, if not pedantic; whereas, the wholesome attrition of different mental organizations, brightens the intellect and enlarges the understanding. The beneficial influences of association affect in a great measure, your moral and physical natures, cleansing you of narrow jealousy, strengthening your confidence in your fellow man, making you less selfish, and causing you to feel that you are co-laborers with many noble and warm hearted brethren, in the good work of elevating your profession—with men, whose mere personal acquaintance is an honor, and whose friendship is a precious boon.

Our dental literature, has not closed its recruiting offices; volunteers are always acceptable, and your duty in this respect is very plain. Accord it your earnest and cheerful support, by word and deed, by precept and example, in any and every way, give your assistance to the faithful few who are now bearing the whole burden.

Your intercourse with members of the profession, should be characterized by a spirit of unlimited liberality. There should be no secrets hid, nor any improvements or discoveries locked up. Remember, that all the knowledge you possess or may acquire, belongs to the common stock; so act, that you may have the approval of your own consciences, as worthy stewards of a great trust. Kindness, and manly frankness, will make you many friends, and any service or assistance which you may render to a brother in difficulty, will be like the sowing of good seed—you may count upon a bountiful harvest. If called upon to give your opinion upon the merits or demerits of dental operations of your fellow practitioners, your duty towards your patients and the public, demands that you impartially judge the case upon its merits, and candidly state your conclusions—remembering always, that the modifying influence of circumstances, existing at the time of, or subsequent to the operation, ought to be taken into consideration, and your final opinion should be given in a manner, least calculated to injure the reputation of your brother; neither insinuate by hints or inuendoes aught, which may be construed to his disadvantage. To sum up the whole matter, and to give you the key to the "code of ethics," do unto others, as you would have others do unto you.

Thus far, gentlemen, have I had in my mind, the worthy and honorable members of our profession, and my remarks apply to the relations which you are expected to sustain towards them alone. There are others to whom I must allude. We unfortunately, (as in other professions) have many unenlightened people among us; while there can be no congeniality of feeling, or similitude of aspirations between yourselves and the persistent and willful ignoramus, you yet must make a distinction between such and he, who does not glory in his deficiencies. To the latter you will extend the helping hand, and by kind and persevering efforts bring him "from darkness to light." The opinionated and self-conceited quack, however, is an unmitigated nuisance, and as such to be shunned. My advice to you would be to avoid the whole class—to "let them alone, *most severely*." You are always at a disadvantage with these creatures, and have no weapons with which to fight them. They are professionally outlawed, and not amenable to God or man.

Having thus summarily disposed of "Doctors" Blow-much, Know-little and Cheat-well, let us return to subjects more agreeable, inviting our attention.

You all hope in due course of time, to obtain a lucrative practice, and with it, to enjoy in the highest degree, the confidence and esteem of your patients. The most skillful, the most accomplished operator, if deficient in those attributes which make the gentleman, will fail most greviously in the realization of his hopes in this latter respect.

Your relation towards your patients brings you at once into intimate contact with them. Hence the necessity for the exercise of manly frankness, tempered with delicate courtesy. Kind attention to the comfort of those to whom you are ministering, entirely exempt from unbecoming familiarity, should characterize your daily walk. To a man or woman capable of judging character, there is nothing perhaps, so disgusting as a fawning sycophant. Guard well your speech, never let a word be spoken to a lady which the whole world might not hear. Consider your office sacred ground, and let it not be profaned.

While performing painful operations, you are oftentimes compelled to witness exhibitions of the weakness of poor human nature. The most delicate and refined, are at times so unstrung by fear and suffering, as to do injustice to their real characters. Operations, which at one time they may have borne with admirable fortitude, may at another tax them beyond their powers of endurance. Scenes of a highly ludicrous nature sometimes will occur, tempting you to an after description, but forbear—and by so doing, preserve the sanctity of your office.

I might here allude to the fact, that some patients, particularly ladies, are extremely sensitive on the subject of wearing artificial dentures; and I caution you against the too common practice of referring one patient to another. This you have no right to do, without first obtaining permission.

Your office and waiting room should be homelike and pleasant. You *can not* probably in the beginning, have your furnishings and adornments what your taste might dictate, but your rooms *can* always be orderly and cheerful, and to secure this, will require constant vigilance on your part.

Good taste and propriety should characterize your attire, together with the most scrupulous cleanliness, and in the latter respect, you *can not* be *too* fastidious in your office manipulations.

I might continue at considerable length in these "practical hints," and still leave much unsaid; general suggestions must take the place of positive rules. A Chesterfield or D'Orsay would fail to provide you with a code of etiquette for all occasions which might arise. Your instinct as true and honorable gentlemen, and that indefinable something called tact, must alone be your guide.

Your professional services will often be called into requisition for children, and in this connection every faculty of a kind heart and patient disposition, will find ample scope for exercise. Deal honestly with the child. Injudicious parents and friends will tempt you to deceive them, and take advantage of their trusting natures. Never consent to such fraud. Tell them the plain truth, explain to them the benefit to be derived from the operation—try to inspire them with courage, and wait their time. You will in almost *every case* succeed, and what is better, will have secured the confidence and trust of that little one. If your lives are spared, you may in a few years be called upon to perform similar operations for this child's children. Think then what a co-adjutor you will have in the father or mother, and what weight their own experience will have with their children.

Your able preceptors, who are also practitioners, have doubtlessly laid before you all your duties, in a far more comprehensive way, in your daily lessons, and you may deem these suggestions superfluous—but, as you are here to-night, publicly to take upon yourselves new characters, it seems meet, that you should hear once more, a short recapitulation of the most important of the responsibilities which you are about to assume.

And now, ladies and gentlemen, you who at once represent the friends of dental education and the public at large, permit me to offer a few observations for your kind consideration. You have heard me "lay down the law" to these young gentlemen, have heard me enumerate their duties towards you—did it ever occur to you, that you have imposed upon *you* duties towards *them?* If I have been at all able to make my meaning plain, you have heard what the profession requires of its members, and this college of its graduates, that you may be faithfully and intelligently served, and that you may not be left to the impositions and frauds of ignorant and unscrupulous pretenders. Your duty to these young graduates, and your own interests go hand in hand.

I would respectfully ask of you how it is, that in our very midst, the young, thoroughly educated dental surgeon, skilled and expert as an operator, and conscientious as a man, is obliged to spend the best years of his life in convincing you that he deserves your trust and confidence; whilst on the other hand, quackery is allowed to establish its headquarters side by side with our dental and medical colleges, and this on short notice? Strangers in our cities find it incomprehensible, that the hanging out of a great red or blue banner, making extravagant use of paint, together with a few shallow "tricks of the trade," (gift enterprises, etc.,) are sufficient to impose upon the credulity of the public, establish a notoriety, and command a good pecuniary harvest for those so engaged.

That these things are facts, is a disgrace to the age in which we live. It must be discouraging to young men who have undergone years of severe training in acquiring a thorough professional and scientific education, to know that as far as large portions of our communities are concerned, one who may have tried perhaps a half dozen different business pursuits in twice as many months, can as a last resort, establish a dental office in Cincinnati, (for instance) put a teakettle on the stove, or run a toy steam engine, and call it " Grand Steam Dental Establishment," and by no inconsiderable portion of your people, be considered the equal, if not the superior, of the modest and retiring man of merit.

This state of things ought not to exist, and I fear that it is a want of proper discrimination on your part, which makes you ready victims to these charlatans, thereby causing you to do an injustice, both to yourselves and to those who would serve you honestly and intelligently.

As a representative of the dental profession, I now appeal to you, and urge you to be careful in the choice of your dentist, satisfy yourselves beyond a doubt, of the man's professional attainments and antecedents, by the recommendations of friends whom you know to be capable of judging. I consider it your duty ladies and gentlemen, to give hearty and cheerful support to the meritorious, and discountenance all pretension and imposition.

Returning to you my young friends. If from what I have heretofore said, you have gathered that all is labor, care, and vexation in your future walk, without gratifying compensation, I must hasten to disabuse your minds of the idea. It is well that you enter upon your career with the shoals and quicksands upon your chart, "forewarned is forearmed." If you understand yourselves and conscietiously do your duty, on many occasions you will be cheered by the delighted manifestations of your patients, of their full appreciation of your services as rendered. Though not your province to watch with anxious solicitude, by the bedside of the suffering; to "count the ebbing strokes of life's failing tide;" to be the oracle of hope or despair. You will have daily opportunities of mitigating human suffering; and this, in itself, is a noble work. *Your* responsibilities are as nothing compared with those of the physician. You can at all times have the satisfaction of knowing whether you have benefited your patients, and have done your whole duty by them. On the other hand, the physician is oftentimes in doubt himself, often receiving commendation when none is due, and more frequently being censured when all praise had been merited.

Go forth then, with all the buoyant hopes of happy youth, and may success attend you, surpassing even your most sanguine expectations.

The appropriate gift of your faculty, accompanying each diploma, proves that as pupils, your spiritual wants have not been unheeded. In this "book of books," you will find unerring rules for your guidance—support for your faith. Profit by, and make them your own; and when life shall close, may you have that consciousness of duty performed, which will evidence to self-approving consciences, that you have not lived in vain.

In behalf of our profession, I bid you a hearty welcome to its ranks. We take pleasure in hailing you as brothers and fellows.

As the sad hour of parting draws near, it devolves upon me, on behalf of your faculty to bid you farewell, and while so doing, I would remind you, that every picture, however sombre, has its softening and relieving tints.

We part but for a season, looking forward with hope to future re-unions.

MECHANICAL DENTISTRY.

BY PROF. C. M. WRIGHT.

Read before the Mississippi Valley Dental Association.

Mr. President and Gentlemen:

I have not selected a subject chosen by the executive committee, but I beg leave to submit this little paper for your consideration, which will not occupy much of your time. I want to enter a protest against the neglect of what we call mechanical dentistry, by good men in the profession, and against the extensive use of block teeth in constructing artificial dentures. The arrangement of teeth in Philadelphia in blocks of three, or two, for the convenience of dentists, is a very good thing for making specimen sets of teeth for county fairs, expositions, etc. It is a help to a mechanic, but it is a death-blow to art and artistic or expressional dentistry. The popularity of rubber and cast metal plates with the profession, created the demand for still greater facilities for rapid and cheap dental work, and the block teeth were presented and are now used to the almost total exclusion of single and plain teeth. What is the result? The sensibilities of the people and the profession have been blunted. The artistic aspirations that once filled our hearts have been smothered, and the mechanical dentist is to-day only a mechanic and not at all an artist. He takes an impression of the mouth presented, and without regard to temperament, expression or features, asks of his customer, "Do you like large or small teeth; dark or light teeth?" He then enters his shop, sets up his blocks in a mechanical way, with mechanically good "joints" and mechanical precision, about the alveolar ridge of his model, vulcanizes or casts, polishes, and his work is done.

No wonder "mechanical dentistry" is sneered at and disliked by the more cultivated members of our profession. No wondor that dental colleges are hoping for and working for the abolition of the chair of mechanical dentistry. No wonder a prominent member of this Association, the President of our National Association, publicly expressed in this lecture room a year ago the hope that the day would come when there would be no professors of mechanical dentistry in our colleges. With rubber, the cast metals, and block teeth, what cultivated gentleman can be content to confine himself to the narrow duties of the mechanical business of to-day?

What gentleman of education and refinement and delicate sensibilities can consent to devote his time and strength to disfiguring his fellow men by putting blocks of porcelain in rows around their mouths? We lay loud claims to advancement in the ART OF DENTISTRY in the last twenty or thirty years. We have advanced in the manufacture of teeth and appliances. We can construct, no doubt, with less labor, finer specimens of workmanship. Mechanically we have progressed, but how sadly has *art* suffered? Is not the dental art worthy of our best efforts? Is it not as fine an art to restore or improve expression in the human face as it is to portray this face on canvas? I think it is. Now let us notice our great inconsistency. The operative department, so called, is pointed at with pride by our best men. They are content to spend their lives in the routine of restoring lost portions of teeth with gold.

There is no *art* (in the higher sense of the word) in this. This operation of taking a broken down tooth and building it up and restoring its shape by welding small pieces or pellets, or strips of No. 2 or No. 120, gold foil, is a very delicate, a very nice, a very skillful operation. It is perhaps as delicate a mechanical operation as is known; but it is strictly, purely and only a *mechanical operation.* I refer to the operation itself; of the daily and hourly business of the dental operator. I do not detract from the intelligence and learning necessary to decide upon when the condition of health of the patient and the teeth and to determine what to do. This knowledge should belong to the mechanical as well as the operative dentist? What I wish to assert, and what you will all acknowledge, if you will consider without reference to post sign-boards, labels, and misapplied names, is that the operative dentist is the mechanic in our profession, and that the mechanical dentist, he who mounts and inserts artificial teeth, who selects and arranges porcelain teeth in the mouth, who restores lost expressions of the face, is the *artist*, or has the artistic part of dentistry.

The fact that we save a natural tooth by stopping it with gold, and that we restore its usefulness by building it up to its natural proportions, makes us benefactors. We help men and women and children to be healthier, to breathe better, to eat better, to speak better, by our skill as fillers of teeth. The boot-maker who fits our feet with comfortable, broad soled and neat boots is a benefactor. He helps men and women and children to be healthier, to walk better, to develop their muscles better, to digest their food better. Yet the boot maker is only a skilled mechanic; he is not an artist. The man who rightly performs what we call mechanical dentistry is a benefactor. He helps men and women and children to be healthier when they have been unfortunate, and he also beautifies them; he restores the expressions. He deals with love, hope, fear, joy, anxiety, remorse, affection, and all expressible sentiments. He is an artist. If this is true, should we not, then, discourage the disposition to cast opprobrium on this department? Let us quit glorifying the operative or purely mechanical at the expense of the artistic, and let us banish rubber, cast metals and block teeth, and devote more of our inventive talent and our artistic taste to the artistic part.

We should insist that our students from this time forth shall be taught to manipulate easily the precious metals and to arrange single teeth with reference to expression, etc. Our mechanical professors should be men of taste, of artistic abilities, and the work of our hands should not be judged by the excellency of polish and finish, but by the effect on expression. There are certain rules for producing certain expressions. The actor learns them. He with paint produces mirth or ferocity, intelligence or idiocy, on his own face. The painter knows them. The sculptor knows them. The dentist should also learn them. His best studies are the human face in all its variety, and works of art in marble and on canvas of modern and ancient masters.

Good men should go back to their laboratories, and discarding block teeth, even with the materials we now know, they may restore this almost lost art. Have we the right to devote ourselves to simply filling teeth and leave the art part of our good and respectable profession to boys and men of no taste? Are we wise in trying to discard this part and in clinging to the less troublesome and purely mechanical part, and in condemning mechanical dentistry, because a few leaders who can not aspire to *art* and are only neat mechanics, have chosen to snub this part and shirk it, because the people have so little taste and so poor an appreciation of our best efforts?

These same people have been educated to pay from five to one hundred dollars for an operation on a natural tooth. With the same good service from us they may be educated to an equal appreciation of artistic ability in the miscalled mechanical department.

TWO VERY PERPLEXING CASES.

BY H. SCOTT.

Miss S., aged about twenty years, is the subject of a very perplexing case. The first right inferior molar had an incipient crown cavity some eight years since. Upon attempting to fill it I found the dentine so sensitive as to make it impossible for me to prepare the cavity. I have twice used the oxy-chloride, with no good result whatever; on one occasion allowing it to remain over a year. The cavity is not larger than an ordinary pin head, and has not visibly increased from the time of using the os-artificial. It is still so sensitive I can do nothing with it. Sometimes she suffers great pain in attempting to masticate on that side, and occasionally has experienced real toothache. The tooth is well formed and otherwise entirely healthy. I fear to use the arsenic. What shall I do? The lady has had a number of teeth filled, with no unusual sensation. Her teeth are above the average for soundness. She is of sanguine bilious temperament and firm health.

Second case: Mr. R., aged over thirty, called to have the second inferior right molar extracted. It was decayed deeply, but promised firmness enough to be taken out. I applied the proper forceps, and the roots parted, the posterior one coming away with little effort. The front root stood above the alveolus, and was very firm. I applied the curved stump forceps, securing a very firm hold, and expected a quick and easy removal; but to my surprise, after a considerable effort, the bone snapped, leaving a sloping stump with the highest point towards the cheek. I applied the patent key, and after using a rotating force I never like to use, there was another snap, this time sloping outwards and dipping below the margin of the alveolus, thereby still further greatly increasing the difficulties to be overcome. The patient now became faint and we desisted. After half an hour I resumed (there was incipient periostitis in the socket) by cutting the gum down a fourth of an inch over the root, and again applying the key with force, this time I brought away a portion of the alveolus and another fragment of the root, and then abandoned the case by requesting Mr. R. to call the next day, if he were still suffering.

He called yesterday, four days after the operation, with an abscess pointing against the integument at the base of the jaw, and which will inevitably open there. Was there anything that could have been done on my part to prevent this termination of the case, that was not done? What would you have done under the circumstances? I thought at the time I could not for my life remove the root without a very considerable surgical operation. Should any one encounter perplexity like this, I beg them not to imagine they have all the trouble there is going on.

ADVANTAGE OF CLINICS.

BY GEO. F. MILLS, BROOKLYN, N. Y.

It is surprising and gratifying as well, to observe the avidity with which clinics are received wherever properly introduced. No dentist who loves advancement but feels a growing desire as he attends clinical gatherings to see them more numerously established throughout the whole field of the profession.

There is something done in this direction within the walls of the dental colleges, but these only reach a small portion of the profession at large, for it is well known that there are hundreds of practicing dentists who as yet know little if anything of the happy influences of professional association. To reach these is the great desideratum, and hence arises the question, why the anxiety for those without? I answer, we are our brother's keeper. It is incumbent upon all who are in the light to bring others into it.

We do not get so near the truth, which is but the light, in our discussions alone as we can in our contact with actual demonstration. There the principle and the method of application are coupled, and no one will deny the practical benefit.

One noticeable result of clinical gatherings is the respect they almost invariably create in those who attend them, for each other's opinions; and criticisms are more pleasantly made. Men do not always speak with their tongues what they know in their hearts, and we want, therefore, teachings that will take hold upon the conscience. If they do not they are powerless for good.

The dentist that attends clinics will begin to apply the measure to his own standard of knowledge, and soon discover his deficiencies. Fraternal feeling is developed by them, and they impress facts on the mind of one who has just come from seclusion.

No doubt but clinics are held in private offices that have not come to the general knowledge for the reason that some earnest but modest spirit is fearful that he may be called forward. But every city should have its public clinic, where all may receive the benefit. Clinics should be held in the country towns once a month; or better, once a week. Some may urge that the country towns can not effect this as readily or as well as cities. "Where there is a will there is a way."

Some men will not associate because they have not been introduced. I once violated the code by introducing myself to a dentist, and I was punished in a few months afterwards by him sending me patients who paid me over six hundred dollars for services rendered.

I believe that immense good would result from the movement that has been suggested, namely, to send out competent men to go where dentists could be gathered together, and there teach by word and by demonstration, and I believe it possible for the right men on such a mission to create such an enthusiasm that the cry would come from all quarters, "come over and help us."

THINGS OLD AND NEW.

BY W. C. STANLEY.

On the 17th of February last a young man, aged 18 years, who was suffering severe pain in the region of the lower incisor teeth, called upon me. On examination I found no decay, but the nerve in the left central incisor was dead, and as a result abscess was in progress. This in connection with the fact that the crown was somewhat misshapen, its axis also having a different inclination from the other incisors, and that it was almost crowded out of the arch, determined me to extract it. On doing so I found it to be a malformation, which I do not recollect to have seen mentioned in any dental work. I am sure that neither Tomes nor Harris speak of it. It is a tooth formed by the union of the crown of the temporary left central inferior incisor with the root and a portion of the crown of the permanent tooth of the same place. A temporary crown on a permanent root.

To get an idea of it, take a temporary and permanent tooth for that place, cut off half the permanent crown by a transverse section; this will leave a narrow belt of thin enamel on the mesial and distal side, but it will extend up considerably on the labial and palatal sides.

Now ream out the dentine and push the tapering root of the temporary tooth into it till it reaches the neck, and you have the thing complete.

The enamel of the partial permanent crown is perfectly fused around the neck of the temporary tooth, and yet it terminates on the labial and palatal sides as abruptly as if cut off with a file. The two structures are entirely distinct, the temporary crown being quite yellow, while the enamel of the partial permanent crown is pearly white and corresponds with that of the other teeth. The root is not completed, the foramen being large, oval, and with its edges sharp.

Proceedings of Societies.

DISCUSSIONS OF THE TWENTY-SEVENTH ANNUAL MEETING OF MISSISSIPPI VALLEY DENTAL ASSOCIATION.

REPORTED BY C. M. WRIGHT, D. D. S.

FILLING TEETH WITH HEAVY AND LIGHT MALLETS.

Dr. J. Taft: No doubt is entertained by a large majority of our profession, of the value of the mallet in filling teeth. There is a diversity of opinion in regard to the kind, and manner of its use, and this diversity is no greater than the diversity in the circumstances of its use. The efficacy of the mallet is very much modified by the difference in the method of use. He would prefer the hand pressure, to irregular, slanting, unsteady blows from the mallet. An assistant should be able instantly to catch an indication from the operator. Dentists make the poorest malleters because they will let the eyes pass to the wrong point of the instrument. He has tried all the kinds of mallets in use, and finds a great variety of susceptibility among patients, in regard to the kind and weight of the mallet. One will bear a heavy lead mallet, while another will wince under it and feel the distribution of force as a jarring sensation, that they do not complain of under the light wooden mallet. Has never found a mallet yet that was not intolerable to some patients. He does not believe that any experiments on any machine will determine accurately the effects of the mallet on every patient.

Dr. J. G. Willis: Agrees with Dr. Taft about the difference in the sensibilities of patients to the forces of the mallet. Uses himself a small wooden mallet, and yet thinks that a great deal depends upon the assistant. Patients will bear uniform blows even if the momentum be greater than irregular blows. Nothing vexes an operator more than a poor malleter, and as filling teeth requires time, it also requires composure of the mind of the operator. Anything that gives assurance promotes success in filling teeth. He wants to depend on the regularity of the mallet blows upon his dam; for freedom from moisture, etc., to be in mental condition to make a good plug. Thinks the difference in mallets themselves not so important a matter. The same patients vary in their susceptibilities, under the same mallet and same force. Thinks the light mallet the most agreeable. In regard to the rapidity of the blows, stated that when two blows of exactly the same momentum are struck, the last one seems the hardest, because the impression of the first has not had sufficient time to diffuse itself and the parts to recover for the second blow.

Dr. F. H. Rehwinkle: Allows an interval of time between the blows. Thinks that much more depends on the assistant than on the kind or weight of mallet. Has experimented with the wooden, the steel, and the lead mallet in the same filling, without the knowledge of the patient, and invariably finds the patients flinch under the heavy mallet. Thinks lead mallets less disagreeable to the sense of sound than ivory or steel. For his use prefers a light lead mallet of from one to one and a half ounces.

Dr. J. Taft: Objects to "*time* strokes," and prefers a stroke *indicated* by the operator. Especially is this important in working about delicate walls of cavities. The malleter should always wait till the indication comes from the operator. For eight or nine years he used the lighter mallets with the double stroke, but for the last year has used the steel mallet almost exclusively, and with this he has but one blow. The heavy steel or lead mallets are too heavy for the double blow. With the lead or non-elastic mallet, the force is distributed largely throughout the surrounding tissues, while with the steel or the elastic mallet, the force is expended nearer the point of the instrument. Would prefer to confine the distribution of force to the gold itself, and not have it extend through the tooth, jaw and head.

Dr. J. W. Baxter: Condenses the gold with one stroke. Uses small points and a light mallet.

Dr. H. A. Smith: The same blow on a large pointed instrument, will not produce the same consolidating force that it will on a smaller instrument. Should think a large point would distribute force more quickly. The smaller the point and the lighter the elastic mallet, the more agreeable are the sensations to the patient. Has tried with pretty good results a leather mallet. Spoke of frequent periostitis from over malleting. A great deal of harm may be and is done by the mallet. There are many teeth lost by the mallet. Skill and caution in the use of this most useful instrument is very necessary to success.

Dr. W. H. Shadoan: Uses a cork between the teeth when malleting on a lower tooth, to prevent the vibrations of the jaw, the contraction of the muscles, and as a support for the jaw. Has experimented with half a dozen mallets from half an ounce to six ounces in weight. Has found the two ounce ivory or three ounce steel mallet the best for a majority of cases. For very loose teeth uses a half ounce mallet with considerable velocity. In some teeth uses the rapid blow with light mallet, and in others the heavier mallet and slower stroke.

Dr. P. G. C. Hunt: Uses a heavy mallet of lead. From observation has learned that there is very much less periostitis under the heavy than under the light and more elastic mallet. When he *presses down* his instrument on the gold, before the mallet blow, finds the patients better satisfied. Has never had serious cases or death of the pulp, or periodontitis produced by malleting.

Dr. McKellops: Has used ivory, steel and lead mallets. Likes lead because it makes less noise. Lead has the objection however of being cut up by the instrument handle, and dropping in small particles on the patients.

Dr. Berry: Thinks the handle of the mallet should be thin and springy.

Dr. Rawls: The lead mallet, like hand pressure, distributes the force and is not so painful to patients. The large point distributes force and drives the mass of gold, while the small point *splits*, and drives in a more direct line. Believes it quite important to press the instrument solidly against the gold before the stroke. Thinks more pain accompanies the use of the small than the large pointed instrument, on the principle of the distribution of force.

Dr. Keely: After experiments with mallets of from one to ten ounces, has settled on a six ounce lead, because his patients complain less with this. Considers it important to press the instrument against the gold before the force. Said he did not think that he could to-day fill a tooth by hand pressure, so dependent is he on the mallet. Advocates unhesitatingly the lead mallet.

Dr. Taft: The large pointed instrument pressed against the gold, and struck with a heavy mallet, permits a distribution of the force, that the fine point and a rapid light blow does not. The fine point and rapid blow consolidates the gold in the immediate vicinity of the point, and does not effect so much the mass. Does malleting produce periostitis? It is not so liable to occur as from hand pressure. The malleting is sometimes a remedy for periostitis. Related his own case, of a sore molar cured by the malleting of a filling some ten or twelve years ago, that had never troubled him since.

Dr. McKellops: Carries his gold to the desired point with pliers, and then frequently uses the plugger as he would in chasing, not pressing it against the gold. Uses the small point in preference to the large on heavy foil. In regard to periostitis, thinks it more liable to occur from the mallet, than from hand pressure force.

Dr. Morgan: Does not use the mallet universally. A tooth around the root of which there is inflammation, can be filled with less pain with the mallet than with hand force, because the force is not so generally distributed by the former. Any one can make a harder filling with the mallet.

Dr. Rawls: Explained that the sudden stroke of the mallet breaks up and drives away the globules of blood at the point of stasis, about the tooth in periostitis, and this is the reason malleting cures periostitis in the cases referred to. On the homœopathic principle *similia similabus curantur*. A blow will produce periostitis and a consequent stasis of the blood, and a blow may break up the trouble and cause the blood to circulate in a normal manner.

Dr. Taft: When there is only a simple stasis this theory may be correct, but when a bruised condition of the part presents, a blow may produce serious periostitis.

SECOND DAY.

Treatment of Soft Tissues of the Mouth.

Dr. Taft: A large proportion of the diseases of the teeth, arise from an abnormal condition of the mucous membrane, and a vitiated state of the secretions. Every one in practice has given some attention to the more apparent diseases of the mouth. Tumors, abnormal growths and similar affections. Even these can be better understood and treated than at present, but there are other diseases more obscure that should receive our attention. One is that condition, that has not reached inflammation, but is an over stimulated condition of the mucous membrane, the result of some irritation. This causes an increase of the secretions and acidulates them, producing an active agent for the decay of the teeth. Sometimes the alimentary canal affords causes for this trouble, but frequently in the mouth itself, the mucous follicles are diseased, though not particularly sensitive, and throw out a secretion of an acid reaction. Whatever changes the normal condition of the mucous membrane, is liable to injure the teeth. The mucous membrane is affected frequently by local causes—deposits on the teeth, filthy condition of the mouth, foreign substances in the mouth, dental plates whether they fit well or badly, in short, anything that comes in constant contact with this membrane, making pressure, may produce this effect with the result named, to the teeth and general health. The thermal effects of certain plates are objectionable in some cases, such as non-conducting substances that do not allow a sufficient escape of the caloric of the mouth, even when no decomposition takes place in the plate itself. Even platinum can not be worn in some mouths, the simple contact of which causes trouble. In practice we should be prepared to substitute the proper material when these conditions are presented—what is best for this particular case should be our inquiry.

Dr. Watt: One condition of mouths we have frequently to observe and not attribute to other causes, is the "nursing sore mouth of women." Generally an impoverished condition of the blood accompanies this disease. The treatment of these cases is so affected by the constitutional conditions of the patient, that we are frequently too restricted in our treatment, *i. e.* we treat too topically. Sometimes these cases are treated with nitrate of silver or carbolic acid, every day, or every other day without benefit. The treatment is wrong. The blood must first be purified. Physicians used to say to the mother with this sore mouth, "you must wean your child and stop this drain, as the impoverished condition of your blood will not bear it." Thinks this in a large majority of cases unnecessary. The zymotic diseases are of this character, produced as they are by foreign substances in the blood, having less vitality than the blood. This virus must be got rid of, and if we can so adjust our remedies that they will kill this poison, and not affect the healthy part of the blood, we have the right treatment to begin with.

We want to rid the blood of the rubbish, and then begin to build—knows of nothing better than a mild course of arsenic. The water from springs that contain a trace of arsenic are invaluable in these cases. Doses of from 1–100 to 1–50th of a grain of arsenic are good. Mild topical applications of carbolic acid also may be employed. This treatment is fatal to the foreign organic matter in the blood, and the ulcers soon begin to grow less. Then we are ready to build. Without this constitutional treatment, the local treatment is too frequently only time misspent.

Dr. Roudebush: Has never seen a case of nursing sore mouth cured, even under arsenic treatment, unless the babe was weaned. Has used Fowler's solution, beginning with two drops and gradually increasing the dose to six.

Dr. Watt: In all these cases wants the mother or the preacher with the sore throat to proceed with their business, and he will treat the disease right on at the same time. Urges the mother to spare the babe the terrible misfortune of not nursing. Has never had a mother to wean her child for this cause.

Dr. Taft: Referred to a case of Dr. Watt's treatment, and said that the babes who were not weaned showed a marked improvement over those who by the advice of other physicians, at other times, had been weaned. This treatment is not only for the parent but is a benefit to the children.

Dr. Watt: The treatment usually begins with arsenic, and is followed by the phosphates of lime. Nourishing diet is the best material with which to build, good beefsteak, newly made cheese, etc.

Dr. Taylor: These little ulcers that appear in the mouth in some cases and at times seem to be epidemic. Referred to an article from Dr. J. B. Smith some years ago on this subject, published in the *Register*. Has noticed this same thing since that time. In these cases the ordinary local treatment of tinct. of Myrrh, Arnica, etc., seemed to be pernicious; increased the difficulty; produced burning sensations, etc. We must go back to the blood and purify it, restore the circulating fluid to its natural condition, and then rebuild. Has given arsenic as a tonic; this excites an appetite for the food that is desirable. The elements we want are found in food and in better quantities than in medicines proper. Has lost confidence in many of the preparations of phosphates.

Dr. Roudebush related a case of a lady with a babe three months old, to whom he gave chloroform and extracted teeth. After this she had sore mouth. He made a gold plate for her, but her mouth got worse. Made a platinum plate, still the mouth grew worse. A physician in the mean time had treated her with arsenic and the phosphates, the babe died and the patient got well immediately.

Dr. Watt: Does not regard Fowler's solution the desirable officinal preparation. It has to undergo decomposition before the arsenic is free to act. Has always had better results from arsenious acid, not combined with a base. Fowler's solution is the arsenite of potash.

Dr. Morgan spoke of the peculiar character of some springs in his neighborhood (Nashville, Tenn.) which have the desired effect in these cases. There are cases of sore mouth in females of from thirteen to twenty years of age, and in men, where the local treatment will not cure, and where the arsenical treatment is necessary. Has observed the epidemic character of this disease. In all these cases has not found local remedies that contain alcohol so beneficial. In his practice has therefore laid aside tinctures. Prefers decoctions. The decoction of white-oak bark is a valuable remedy.

Dr. Taft: There is a strong disposition to use local remedies in these cases. They may some times relieve but must not be relied upon. The chief reliance is upon systemic remedies, and that these may be rational we must learn the causes of disease. If poison in the blood be the cause, it should be neutralized or eradicated. Some poisons we can not eradicate, but we may control them to a certain extent. Malarious poisons may be removed, while usually syphalitic poison can only be controlled.

In building up we want those elements that enter into the formation of cells, the nitrogenous agents that make muscular tissues. First, however, we must find the enemy and then rout him.

THURSDAY, P. M.

Materials for Filling Teeth.

Dr. Taft: Gold is of course the best filling known, though it has some serious objections. Its conductibility is one, and another, the difficulty of adapting it to the purposes for which we most need it. He spoke of the more easily manipulated and more easily adapted materials, amalgam, Hill's Stopping, os-artificial, and referred more especially to Guilloi's cement. This hardened slower, but when well protected for an hour or two from moisture, makes a very good filling. Hill's stopping and gold are all we can at present rely on. Gold is very variable; from one manufacture will be soft, tough and adhesive, while at another time, even from the same ingot, it works entirely different. Other metals show the same disposition. Steel, for instance, is in one condition brittle, and at another springy and tough. The method of the manipulation of gold foil to produce the best and equal results is not fully understood even by the manufacturers.

Dr. Morgan remarked that he had met with the same difference and had failed to learn even from the gold-beaters the causes. The question has been asked, at what thickness of gold can we get the maximum softness. Gold from different localities show different degrees of softness. The southern mines produce a paler but a softer gold. The gold from Georgia and South Carolina seems to be freer from iridium. He referred to his use of this new French cement, and thinks it very nearly the same material we call os-artificial. The setting of os-artificial can be affected by the temperature, and if mixed on a thick slab of glass, after taken from ice-water, will set *slower*.

Dr. H. A. Smith: Thinks that if gold is perfectly pure, it is the same in all its working conditions. The alloys affect the working qualities. By increasing or diminishing the alloys, the molecular mobility of the mass is effected. To obtain a homogenous mass, certain definite proportions of the metals must be used. French metallurgists have given this subject much attention. Thinks Hill's Stopping a better filling generally than os artificial, and would rather trust it than Guilloi's cement.

Dr. Taft remarked in regard to the thickness of the foil, his experience warranted him in thinking no gold under No. 4 valuable, that from No. 4 to No. 60 are the most desirable. His practice lately has been to make the body of the filling with No. 4 or 6, and to finish with the heavier foils, 30 and 60. A good deal depends upon the condition of the gold. If we could get the gold always just right, the heavier foils would then perhaps be better than the light for the whole. The advantage of using heavier foils on the surface is that a better finish is secured. He finishes by laying on the flat, smooth pieces, and welding perfectly about the edges, by letting the heavy gold overlap the thin wall, or rather to hug down on the friable edge and thus secure and protect it. This can be better done with No. 60 in his hands than any other gold. We can save more of the form of the tooth with this method and No 60 than with thin foils.

Dr. McKellops now confines himself entirely to heavy gold foil. Entirely ignores amalgam. Uses, of course, Hill's stopping and os-artificial, especially in children's teeth, but not for any class of permanent fillings. Knowledge of the use of heavy foils increases every day and hour his confidence. Thus the introduction of heavy foil has improved the quality of foils in the market. Does not think that we can get different quality of gold from the same ingot, but it may be from different meltings. Thinks he can accomplish anything with gold that any man can with amalgam, and that if he could hold an egg-shell steady he could fill it perfectly with heavy foil. Urged a fair trial by the profession of heavy foil. Showed some specimens of heavy foil and some fine quality of rolled foil. Rolled gold is much softer and much tougher than the beaten foil. No. 20 will make perfect cylinders. In filling approximal cavities thinks it safe to leave spaces between the fillings in opposite teeth sufficient to avoid friction of the fillings in mastication, and to avoid the conditions that occasion the decay. Right here he asked to digress and make the positive assertion that in our dental associations, where these subjects are talked over, we find the quintessence of knowledge—knowledge that we may never get from books or by our unaided efforts, though our solitary labor be ever so great.

Dr. Watt: It is a most unreasonable thing to expect that pure gold will be exactly the same, at all times, after its reduction to foil. If each *sheet* could be beaten with the same hammer, and alone, and the particles should yield in the same directions under the hammer, then perhaps, gold foils would all work alike. Rolling is certainly the most philosophical method of preparing gold for dental purposes. The fibrous condition is better preserved. When you strike the gold with the hammer the fibres are split.

Dr. Willis: Compared an unorganized profession to a regiment of soldiers straggling along without regard to rank or time. Every man in an organized profession, helps some. The heavy foils are introduced, and this excites the attention of the whole profession to the subject of good foil, and brings better work from the gold beaters, brings better instruments with which to manipulate the better gold, then the rubber dam comes forth, and all help to better results from our hands. Nothing is so annoying as to hear that this or that man is the "*best* operator in the country." The man who saves the largest proportion of the teeth he operates on is the best dentist, whether he does it with light or heavy, soft or adhesive foils.

There are physical laws against the use of very heavy foils—for the thicker the foil the harder it is—the more unyielding, etc.

An objection to Os-artificial and Guilloits' cement is, its disagreeable roughness when in contact with the tongue.

FRIDAY, P. M.

Microscopy of the Teeth.

Dr. Taft: Detailed some experiments he had instituted in this direction. Referred more particularly to the anatomical structures of the teeth, rather than to the pathological conditions. Perhaps the profession generally are not aware of the great variety exhibited in the structures of the teeth. There is a general similarity, of course, as there is between men, but the variety is as great as the variety in men's faces. Showed some diagrams of about 3,000 diameters, exhibiting the tubuli of the dentine, in very great variety. Interglobular spaces are quite rare, only appearing in cases where there has been interrupted development. The spaces between the enamel and dentine vary in different specimens. The tubuli all have a general directian toward the periphery of the dentine, but vary largely in the regularity of their curves or courses, some running in straight lines, some in curves of various degrees. Sometimes their tubuli have branches. Sometimes they terminate in the granular layer between the dentine and enamel, and sometimes they end in fan shape terminations, being lost in the enamel itself. At other times the tubuli seem to pass through the enamel, even the cusp of a tooth. He also showed a diagram of a palatine molar root in sections, where on one side the tubul run into a line near the pulp canal, and on the other they seemed to run around the canal. Diagrams were also shown where the secondary dentine was exhibited in the pulp canal. In one the tubuli run through the secondary dentine. This internal deposit is very irregular in appearance. A question to be decided by future observations and experiments is: "where a sensitive part of a cavity presents, do the tubuli appear in great numbers, or fewer, etc.?"

Ordinary cementum has only the lacuna, little lakes with canalicula or spider legs, and is without the tubuli.

FIFTH SUBJECT.

Dental Therapeutics.

Dr. Rehwinkle: Spoke of the great need of more knowledge on this subject, of the demand for a special dental text book on the subject.

Dr. Osmond: In sensitive dentine, in those cases where the dentine seems to be almost gelatine, uses nitrate of silver in a saturated solution. After the application the places look like black decay, but the disease proceeds no further. He referred more particularly to those cases of sensitive dentine near the margins of the gums. Where this disease occurs there is a lack of calcarious substance, and a course of the phosphate treatment is necessary. Urges patients to stop the leakage of the natural phosphates by hard study and other exhaustive brain work, and to avoid the alkalies in food, salaratus in hot biscuits, etc. He makes saturated solution of the local remedy, nitrate of silver, by taking a piece of cotton wound round a little wooden toothpick, and with parafine, rubs it on the stick of nitrate of silver, and then applies carefully. In persons of strumous diathesis employs the phosphates. Prefers Churchill's preparations of the phosphate of lime and hypophosphate of soda in equal parts.

In ulcerated teeth where the sac appears, or periodontitis—a pyogenous membrane, a chronic inflammation exists—we want to get up an acute form of inflammation. After treating systemically, he pumps the iodine and carbolic acid into the sac. Where no external opening exists, he leaves the canal open after injection.

Dr. Watt: Agrees with Dr. Osmond in regard to the nitrate of silver. It combines with the albuminous tissues, and to the extent it combines death ensues. By applying it in this way there is but very little death; then by building up the system the result is good. Objects to the chloride of zinc in these cases. It causes pain. The blackened part forms a perfect covering while the dentine underneath is repairing.

Dr. Osmond: Applies nitrate of silver in sensitive cavities, when the pulp is not very far off, with better results than any other remedy.

Dr. Willis: Wished to enter his protest against the practice of injecting strong carbolic acid into an ulcer or sac at the end of a root, because it gets up such an inflammation. As favorable results can be accomplished with dilute carbolic acid, though it seems to require a longer time. Objects to violent means in therapeutic treatment. The death of the pulp is the universal cause of the abscess at the point of a root. We must stop up the root to keep out the gas formed by the decomposition of animal matter. Apply a pledget of cotton saturated with dilute carbolic acid. Sometimes the tubuli are filled with gas, and when the pulp canal is filled, this gas in the tubuli must escape through the canalicula of the cementum. Periostitis results from this, and the pus will escape around the neck of the tooth. He does not inject medicines at all, but applies it on cotton thread. Mixes carbolic acid with glycerine.

To prove that decomposition goes on in the tubuli, asked if when a plug is removed from the crown, even when the root or roots are hermetically sealed, an intolerable odor is not usually noticed?

Dr. Roudebush has treated teeth for sixteen years, and must acknowledge with poor success. Does not think he saves one tooth in ten. Honestly acknowledges that he has never saved or restored to perfect health a tooth with a sac at the root. They appear cured, but the disease breaks out again in a year or two. Objects to nitrate of silver on account of the discoloration, in front teeth. Has used carbolic acid, arsenic, and even cobolt for sensitive dentine, with pretty good success.

Dr. Willis: In former practice among surgeons there has been a prejudice against admitting air into abscesses. This care is of importance, and it is as necessary in the treatment of abscesses or roots as anywhere else. The oxygen of the air is not objectionable, but the irritating particles of animal matter afloat in common air are. Prof. Lister, in opening an abscess, always used to dip his lancet in carbolic acid, cover the abscess with carbolic acid, and then lay over it a piece of cotton or linen cloth to prevent the entrance of these irritating particles.

Dr. Taft: All the circumstances must be taken into consideration in the treatment of these cases, if we would gain success. If they are not understood and regarded you will fail in ninety-nine cases in a hundred. What he means by a success after this treatment is that a tooth shall be made comfortable and useful for the longest practical period. When there is a good degree of vitality in the cementum and dentine, the trouble referred to by Dr. Willis will not occur. In cases where it does we can surely help nature to carry off the debris. Has not found so great difference between carbolic acid and creosote in the treatment of these cases; both form an insoluble compound with the albumen and fibrin, and both are stimulants.

Dr. Morgan: Very much of our success in such cases depends on the systemic condition of the patient. Thinks it unadvisable to attempt the cure of abscesses in the molars of a patient of strumous diathesis or in scrofulous patients. Treats through the pulp canal or alveolus, and frequently makes an opening to the point to be treated. Sometimes there appears to be a calcarious deposit on the point of a root, but analysis has found it composed entirely of animal matter. Sometimes simply cutting this away, or scraping the point of the root, or cutting away a little of the cementum and dentine at this point, is all the treatment necessary. Uses creosote in full strength frequently.

Dr. Rehwinkle thinks too much stress is usually laid upon the mechanical treatment. When we go to work to save we go to work and kill by filling root and crown. We must treat intelligently, and must even put our patient to bed, if necessary to save a tooth. They sometimes require blue mass and saline cathartics.

Has heard of operators who fill with wonderful skill up into the tortuous and crooked canals of a pulp, and go even beyond that and make a rivet-head on their gold on the other end of the apex, and then he has felt that he has mistaken his calling, for he desires with becoming modesty to acknowledge that he can't do this.

Selections.

THE MICROSCOPE IN MEDICINE.

The debt which modern medicine, both theoretical and practical, owes to the microscope can hardly be overestimated, and yet the value of the instrument for clinical purposes is not so generally appreciated by physicians as it ought to be. Many are too ready to sneer at it as a mere plaything, and to deny that it is of real service to the every-day work of a medical man. To such skeptics we commend the following extracts from a chapter on the microscope in a recent work by Prof. Bennett of the University of Edinburgh:—

"Some years ago I was summoned to see a dispensary patient laboring under bronchitis, who was spitting florid blood. On examining the sputum with a microscope, I found that the colored blood corpuscles were those of a bird. On my telling her she had mixed a bird's blood with the expectoration, her astonishment was unbounded, and she confessed that she had done so for the purpose of imposition.

"A boy was brought to me with an eruption on the scalp, which was of so indefinite a character that its nature could not be determined. He had lately been elected to occupy a vacancy in one of our educational charitable establishments, and the question to decide was, whether the disease was or was not contagious. On examining the scalp with a microscope, I readily discovered the *Achorion Schoenlenci*, or fungus constituting true favus, and as this has been experimentally proved to be inoculable, I had no hesitation in preventing his admission into the school.

"A child was brought to me said to be affected with worms, because it passed yellow shreds in abundance, which, to the naked eye, closely resembled ascarides. All kinds of vermifuge remedies had been tried in vain. On examining the shreds with a microscope, I found them to consist of undigested spinal vessels of plants, and they ceased to appear when the vegetable broth used as food was abandoned.

"An individual was supposed to be laboring under dysentery, from the frequent passage of yellowish pulpy masses in the stools, accompanied with tormina and other symptoms. On examining these masses with the microscope, I found them to consist of undigested potato skins. On inquiry it was found that this person had eaten the skins with the potatoes. On causing these to be removed before dinner, the alarming appearance ceased, and the other symptoms also disappeared.

"An elderly lady conceived herself to be affected with insects continually forming on the skin, which produced incessant itching and tingling. All the hair was removed, and every kind of application was tried without effect. On rubbing the surface she always saw minute white rolls and black specks, which she regarded as insects in different stages of development. The torment and anxiety this caused her for many months it is scarcely possible to conceive. At length she labored under the idea that she was communicating the disease to her husband and daughter, when, at the request of her medical attendant in the west of Scotland, she came to Edinburgh in order that I might investigate and treat it. I had the pleasure of showing this lady, under the microscope, that the white bodies were minute rolls of epidermis or of the cotton cloth with which she rubbed the skin, and that the black specks were portions of dust or soot. Her hallucination being in this way dissipated, she returned home perfectly well."—*Boston Journal of Chemistry.*

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NOTE ON THE PHYSIOLOGICAL EFFECTS OF CARBONIC OXIDE. —By Prof A. R. Leeds.—I accidentally respired, some time ago, a quantity of pure carbonic oxide. The gas was contained in a quart bottle, from which I inhaled certainly less than a pint—probably a quantity not exceeding a gill—into my lungs, previously exhausted through expiration of atmospheric air. For a moment no change of mental impressions or of bodily feelings was noticeable. The next, without any intermediate condition, I was struck senseless to the floor. Fortunately the bystanders rushed immediately forward, tore open my clothing, poured water upon my wrists and head, and applied violent friction to my limbs. The pulse had stopped beating, or beat so feebly that in the agitation of the moment it was imperceptible; the chest had ceased to expand and contract, the complexion had assumed the livid hue of death, and the temperature of the body was rapidly falling. The operation of the carbonic oxide was so immediate as to prevent the lungs from throwing off the single charge they had received, and the shock arising from the remedies employed probably enabled them to do so A slight nausea, which passed off in the course of a few hours, and a dullness and oppression in the crown of the head, lasting some time longer, were the only effects which remained after restoration to consciousness.

THE PRODUCTION OF ASTHENIA OR ANÆSTHESIA IN SURGICAL OPERATIONS BY COMPRESSION OF THE VAGUS NERVE.—(*The Practitioner*, December, 1870.)

In a short paper, probably the last ever written by its distinguished author, the late Dr. Augustus Waller, of Geneva, shows that pressure exerted upon the vagus nerve in the neck produces on man most of the principal symptoms observed on animals when that nerve is isolated and subjected to the direct influence of galvanism. Upwards of twenty years ago, when studying the subject of compression with reference to hysteria and epilepsy, two cases occurred where compression of the vagus was followed by all the symptoms described by Aristotle "In each case the patient, after moderate pressure, fell down, as if struck by lightning, on the floor before me, like a lifeless corpse, with all the voluntary muscles relaxed. Scarcely had I time to become alarmed, when sensation and voluntary power returned, although for some time afterwards there remained considerable weakness and debility, though not sufficient to prevent the patient from walking away unassisted."

These symptoms appear to the ordinary observer to be attended with considerable danger, but such, in reality, is not the fact, as the heart is always found to be pulsating, and the respiration in play. He therefore recommends its adoption in cases where the abolition of muscular power may be desirable, as in instances of dislocated bones of difficult reduction, previous to the employment of the ordinary anæsthetics, the administration of which is attended with a certain amount of danger. As an illustration of the practice, he narrates the case of a powerful, athletic man, in whom, in consequence of a fall, the head of the humerus was dislocated beneath the clavicle. An ineffectual effort had been made to reduce it without chloroform, and, while the messenger was procuring that agent, compression was made of both vagi, while extension and counter-extension were kept up. At the end of two or three minutes, just as the two carotids could no longer be felt beating beneath the fingers, a sudden click indicated the return of the bone into its socket.

As an illustration of the anæsthetic effects of vagal pressure, he says, "A molar tooth was extracted from an out-patient of the Hôpital Cantonel by one of the house surgeons. While the patient was seated, I was prepared, at the back of the chair, to apply pressure on both vagi. As soon as the key was gently applied around the tooth, I began the pressure, and gave a sign to the operator to commence. The result was perfectly satisfactory. According to the statement of the patient, she had suffered no pain, and was most enthusiastic in her thanks to me. At the moment of extraction the patient cried out, which, however, occurs in many instances with chloroform, where, as in this case, the patients afterwards declare they have not felt any pain."

LITTLE THINGS.

In addition to the ordinary use of rubber tubes for moving irregular teeth, I occasionally find a narrow ring very useful in guarding from moisture cavities on the lingual and buccal surfaces which approach closely or pass the gum margin. The shape of a tooth, when an elastic ring is passed over the crown, favors movement toward the gum, and thus exudations which would be very troublesome are restrained by the the compress.

Not long since a patient called, suffering intense pain in a lower cuspid or bicuspid, which had the pulp slightly exposed by abrasion of plate, or shallow decay below the crown, on the posterior surface. There was no adjoining tooth on that side, and there was no cavity to hold cotton. How could I retain there any agent to allay pay? Especially how could so dangerous an agent as arsenic be used there? I thought of my rubber tube; cut off a ring wide enough to cover the decayed portion of tooth, passed it over the crown, and in a moment had a complete pocket to retain applications of either creosote or arsenic safely. PRACTICE.

Editorial.

MISSISSIPPI VALLEY DENTAL ASSOCIATION.

The last meeting of this old and established association was well attended, both as regards the enrollment and the quality of the members present. A full report of the discussions is published in the present number of the REGISTER, and they will speak for themselves.

The discussions were not as full as could be desired upon any of the subjects presented, and it is just possible that little or no thoughts was bestowed in preparing them for associative judgment. Herein lies one of the elements of futility, and its permitted existence is all the more deplorable and reprehensible when every member must feel that great benefit would accrue were a more systematic and united effort made to flood every subject for discussion, with the fullest light of intelligence and experience. The central idea of association is to be found, we opine, in this high light influx. The association to the professional man, is what the exchange is to the merchant, perhaps more, and just in proportion as the individual gives will he receive.

Let loose a thinker upon a body of men, and behold the result. Some are seduced into throwing their thoughts into the common stock, others are provoked to do the same, while all are stirred and aroused until all the intellectual bristles stand on end. A meeting of professional men should bristle with thought always, and it will fall short of purpose and usefulness when its members sink into mere routine and indifferency.

The meeting in question was noteworthy for elevated tone and the entire absence of personalties. A spirit of enquiry characterized the sessions, and the members separated, feeling that the time was well spent, and that no matter how far experience may take the individual, he will still obtain glimpses beyond, through the experience of others. T.

"WATT'S ELEVATOR"—A MISNOMER.

In the advertising department of the *Dental Cosmos* for January, 1870, reference is made to an instrument named as above. Being totally ignorant of the existence of any such instrument, we ordered a few, on suspicion, as it was embarrassing not to be able to describe our own elevator. And now we propose a brief history of the name, and of the instrument.

After we had retired from practice, we showed a favorite instrument to our friend, Dr. B. F. Arrington, and if by any intimation we impressed him with the idea that we had aught to do with its invention, such result was not intended. We were then wholly ignorant of its origin and history. Dr. A. requested the use of it as a pattern, and sent it to Dr. White. Feeling the necessity of a name, and not knowing what else to call it, we suppose Dr. W. named it as above. Not content with the misnomer, we have traced the history of the instrument, and for the present, have the original in our possession.

This instrument was made, about forty-five years ago, for Dr. Hendrick, of Milford, Ohio, in accordance with his own directions, he not being content to extract teeth with only such facilities as were then afforded to physicians. The instrument was improved from time to time, till it reached its present state. Some of these improvements were suggested by Dr. L. A. Hendrick, a well-known dentist, and son of the inventor, some by Dr. W. M. Hunter, Mr. Sherwood, Jno. T. Toland and perhaps others.

In its present state, the instrument is well nigh perfect. It has no sharp angles or corners to lacerate the soft parts of the mouth. Spongy gums are pushed before it, not cut by it. It is perfectly smooth in all its parts, so that it does not roughen a tooth against which it rests as a fulcrum. Almost any root can be removed by it; and very many of them with less pain than is caused by the forceps in seizing them preparatory to extraction. The lower wisdom teeth, when badly decayed, can be removed with it as readily as with the Physic forcep, and much more readily when the face is swollen, and the mouth is opened with difficulty.

A tooth to use as a fulcrum is necessary; but this need not be the one next adjacent to the root to be extracted. Nor need it stand very firmly; as there is but little strain on it. A slight rotation of the instrument, after pressure has commenced, completes the operation.

Many operators are prejudiced against elevators. In abandoning the turnkey for the forceps, the change for the better was so apparent, it is not strange that the inclination is to make the forceps do all. But we are very sure that a skillful operator, with HENDRICKS' ELEVATOR, will remove more than half the roots that need extraction, with less pain than will be inflicted by the forceps in grasping them; and, at the same time, the gums will not be lacerated to so great an extent. This is important, for the extraction of a tooth is one of the most painful operations known to surgery. The man who, from defective instruments, or want of skill, fails to perform it properly, deserves to be, and should be shunned by the public. W.

EDUCATIONAL.

The closing exercises of the Twenty-fifth Annual Session of the Ohio College of Dental Surgery, took place on the evening of March 1st. The commencement was held in the hall of the college. As usual, upon such occasions, the hall was filled with an interested audience. The senior class consisted of nine members, viz.: J. A. Stipp, Ohio: Chas. Welch, Ohio; John Rabe, Ohio; R. E. Finley, Ohio; W. T. Wallace, Ohio; S. E. Harryman, Indiana: J. E. Cravens, Indiana; J. R. Wilkings, Mississippi; C. S. Case, Michigan, upon each of whom was conferred the degree of Doctor of Dental Surgery, by Dr. James Taylor, President of the Board of Trustees who also delivered an interesting address. The valedictory to the graduating class was delivered by Dr. F. H. Rehwinkle, of Chillicothe, O., for which see another page of this journal, it speaks for itself. We ask for it a careful perusal, and some parts of it should be committed to memory. It should be brought to the notice of the public as well as the profession.

The reply on behalf of the class was made by J. E. Cravens, and is just what it should be. In addition, a fine band discoursed sweet music during the evening, and to all it was a very pleasant conclusion of the arduous labors of the session. T.

A LAPSE.

In an article in the *Dental Times*, Prof. Buckingham, tells us how to reduce gold and silver scraps to plate. When the silver is reduced to a chloride, he says: "The chloride should be covered with fresh water, and add a small portion of sulphuric acid; then put a few small pieces of zinc in the vessel, and let it stand for a day. The chlorine will leave the silver and combine with the zinc."

The closing sentence contains the lapse. The zinc decomposes the water, taking oxygen, and liberating hydrogen. The hydrogen takes the chlorine from the silver. As the oxyd of zinc is formed, it unites with the sulphuric acid. The liquid contains sulphate of zinc, not chloride; and the escaping gas is hydrochloric acid, not hydrogen. And Prof. B. knew all this as well as anybody, and he should have written more carefully, in writing for the young, as he proposed to do. W.

PHOSPHATE OF LIME.

We have for many years used the phosphate of lime in practice, with the view of improving the condition of the teeth, in which that constituent was deficient in quantity, and so frequent and so definite has been the results, that we are constrained to use it almost constantly. The most practicable form, has been a matter of no little solicitude. The formula should differ with varying indications; but what has interested us most was to get the best preparation of the simple phosphate. For many years we used the solid substance—the refined lime phosphate of commerce, with a consciousness, all the time, however, that a solution of it would be better. With the object of obtaining the best simple solution of the phosphate of lime, we made known our want to Mr. E. S. Wayne, a very superior chemist and pharmaceutist, who gave us the following formula:

R.—Acid phosphoric dil. U. S. P. q. s.
Phosphate lime, fresh precipitated. q. s.

Dissolve the phosphate of lime to saturation in the acid, filter, and add an equal quantity of pure glycerin, or of sugar, preferably the glycerin. (In case of anæmic condition, phosphate of iron may with advantage be added, also made tonic by the addition of sulph. quinia.)

This makes a very pleasant syrup, and one holding in solution a very large quantity of the phosphate; an ordinary tea-spoonful containing about 5½ grains. T.

THE TREATMENT OF SUPPURATING GLANDS OF THE NECK.

Dr. John Murray says in *The British Medical Journal:*

The interesting communication by Mr. Lawson Tait, on this subject, in which he recommends frequent tapping, leads me to suggest that more consideration should be shown by practitioners to the simple plan of drainage than is, I believe, the custom.

A case at present under my care is sufficiently illustrative of the method and of the remarks which I wish to make. A girl, eleven years of age, presented herself on January 16th at the Middlesex Hospital, with several enlarged cervical glands, one of which, as large as a chestnut, had already suppurated. I passed at once two silk ligatures through the tumor by means of a needle, and tied the free ends. The mother was directed to keep the openings patent by moving the ligatures a little twice or thrice a day. In a week the tumor had much diminished, a considerable quantity of pus having been discharged. I then introduced, in place of the silk sutures, one of Professor Lister's cat-gut ligatures, soaked in carbolic oil, which answered the purpose admirably. This was removed in three or four days. On the 1st of February the abscess had ceased discharging, and the needle wounds had healed. There were still, however, some tenderness and redness over the seat of the abscess, with induration of the skin, which are, however, now rapidly disappearing. The part is at present being painted with collodium flexile. The other gland enlargements has subsided. Unless something untoward happen, the child will be saved the disfigurement of the extensive and permanent scar which would have resulted from the ordinary treatment by incision; I say ordinary, because Professor Lister's results under his method are said to be excellent, little or no noticeable mark being left. I have myself exceedingly little experience of the drainage plan of treatment; it is popular with some, and as unpopular with others who have tried it; but that its success is insured, with very excellent results, the above case proves.

OBITUARIES.

KNAPP—Suddenly, on Wednesday, February 15, 1871, Mrs. Emily A., wife of Dr. J. S. Knapp, aged 44 years. Dr. B. M. Palmer officiated at the funeral ceremonies, which took place in the afternoon of the day of her death, at the residence of the family.

In Memoriam.

NEW ORLEANS, Feb. 15, 1871.

At a special meeting of the New Orleans Dental Association, held this day, at the residence of Dr. J. A. DeHart, the following preamble and resolutions were unanimously adopted:

WHEREAS, It has pleased Divine Providence to take from a prominent member of our association, his beloved wife, and we desire to offer our condolence and sympathy to those who are most bereaved. Be it

Resolved, That in the sudden and untimely death of Mrs. Jas. S. Knapp, her husband, children, relatives and friends have suffered a deep affliction and an irreparable loss.

Resolved, That in the many excellent qualities of mind and heart exhibited by the deceased, are most worthy of emulation, and by her exalted virtues, social and urbane manners, had won the highest esteem of all who knew her.

Resolved, That these resolutions be spread upon the minutes of this association, that they be published in the city papers, and that a copy of the same be handed to the family of the deceased.

JOHN G. ANGELL, D. D. S., *President.*

A. F. McLAIN, D. D. S., M. D., *Rec. Sec.*

* * *

DIED—On the morning of February 14, after a short illness, our highly esteemed and worthy professional brother, Dr. H. E. Peebles, of St. Louis, Mo.

We have known Dr. Peebles for many years, as a most noble Christian gentleman. He was appreciated and loved wherever known; and he was well known to the dental profession, not only of this country but in other countries. In relation to his death the following action was had at the late meeting of the Ohio Dental College Association: T.

Resolved, That in the death of Dr. H. E. Peebles, the association has lost one of its most active and useful members; the institution one of its first and warmest patrons, Dr. Peebles being one of its first stockholders; and the profession at large, a high minded and honorable member. And as a memorial of our estimation of his worth, we place this resolution on our minutes, and that our Corresponding Secretary send a copy to his family.

JAMES TAYLOR.
JAMES LESLIE.

THE

DENTAL REGISTER.

VOL. XXV.] MAY, 1871. [No. 5.

Communications.

FIRST DENTITION.

BY H. L. SAGE, BRIDGEPORT, CONN.

Read before the Connecticut State Dental Association.

The care of the mouth during the eruption of the temporary teeth, and the management of the diseases common to this period, have been so generally considered as out of the province of the dental surgeon, that they have received but little notice, either as an interesting branch of study, or as requiring his practical attention; and so far as the so-called diseases of dentition are concerned, considering his present status, it is proper that their treatment should fall where it legitimately belongs—to the medical practitioner.

But, as an object of study, the growth and development of the deciduous teeth, and the phenomena connected therewith, should be as familiar to the dentist as it is possible to make them, as well as the means of alleviating the morbid conditions sometimes attendant upon the process of "cutting" them—and this study is rendered doubly interesting to every member of the profession who has his own little ones, as he watches the changes in the oral cavity during this critical period—for critical it is, to a large proportion of children—probably not from the mere fact that all the functions concerned in the evolution of the teeth are so actively engaged, but from the direct relation which subsists between the rapid development of *every* part of the system at this period of life, and the production of disease.

As above stated, the care of the developing teeth and surrounding structures during first dentition, has not as yet, been confided to the hands of the dentist, from the fact that he has not yet made it, or desired to make it, a part of his specialty, by qualifying himself therefor, by a proper degree of attention to the local and sympathetic disturbances accompanying a morbid condition of the nervous and vascular system—the consequence of the above cited causes in subjects constitutionally feeble. Even after the first set of teeth is fully developed, he is only occasionally consulted, and then perhaps, under the apprehension, often groundless, that their removal is necessary. In rare cases, he is called upon to fill them, but usually not until caries has progressed so far as to expose the pulp, or involve the surrounding tissues.

The assertion that the treatment of the diseases of dentition do not fall within the field of practice of the dentist, although true in the main, may perhaps, admit of some qualification by considering them in their proper division of local and sympathetic, for if the former, he should be able to occasionally afford relief, and to mitigate wholly or in part, the severity of the morbid phenomena not unfrequently attendant upon the processes concerned in dentition.

Let us enquire into the meaning of the terms *local* and *sympathetic* as they relate to the subject under consideration. Prof. Bond, defines them thus: "*local* diseases of dentition, are those which affect the teeth, gums and mouth; *sympathetic*, those which manifest themselves in other organs." These are influenced by various causes, among which may be mentioned, the degree of local irritation caused directly by the advancement of the teeth, the amount of constitutional vigor possessed, and which determines in a great measure, the susceptibility of the child thereto, not to speak of the age as having *its* effect, and also the degree of rapidity with which nature performs her functions of growth, development and absorption; for the capillaries being naturally stimulated to increased activity, may, by the over development of a part, pass the boundaries of the normal process of growth, thus inducing diseased action. But being natural processes, they do not necessarily lead to abnormal conditions, and will not, if the child is perfectly healthy; for such is the rapidity with which changes occur in infancy, that many of the symptoms accompanying dentition *are* natural, and not the result of disease. Any organ in a state of activity, induces in a corresponding measure a determination of blood to the seat of action, and thus it is, with the gums and subjacent tissues, at this stage of life.

In a healthy subject, an increased flow of saliva is usually attendant upon the process in certain stages, or a moderately lax state of the bowels, thus allaying or preventing the serious consequences which might otherwise ensue. Therefore, it is only to remove the latter when they are excited in a greater or less degree, that any interference is required, at the hands of the medical or dental practitioner.

The "name is legion," of the diseases which have been cited as dependent upon dentition as a predisposing cause, but neither time, space or patience, will admit of a specification of "all the ills" that infancy "is heir to," as being a direct or indirect consequence of an attempt to perfect an organization having in itself the seeds of disease, ready to germinate when the conditions favorable thereto present themselves. "The influence of normal dentition in producing disease and causing death," says Jocobi, "is certainly not such as is often supposed. even by well educated medical men."

One of the most serious complications of dentition, is a gastro-intestinal disorder which never appears at any other period of life—though what connection it has with the process, it is not easy to determine, but that it comes under the head of *sympathetic*, is manifest.

This disease, cholera-infantum, is an abnormal condition of the mucous follicles of the intestines, and perhaps, it may be indirectly incited by irritation of the mucous membrane of the mouth, caused by teething, which extends in its influence to the parts adjacent or subjacent thereto, and continuous therewith—the stomach and bowels sharing in the exalted sensibility.

All the parts concerned in nutrition, at this epoch, are in a high state of activity, and the mucous follicles of the intestines, whose function it is to secrete the fluids concerned in digestion, yield them at this time in great abundance—which, thus far, is a natural and healthful process. Should this secretion become excessive, however, diarrhœa is the consequence, and if allowed to go too far, it becomes complicated with other derangements of the system, and if the exciting causes are not removed, they unite in producing that so often fatal disease of the child's second summer, cholera-infantum. The first year of the infants life, being characterized by the greatest activity in the process of development, the degree becoming more moderate as the child advances to the fourth or fifth year, it is then most subject to violent attacks of disease, and hence we observe the greatest mortality in children during that period. The brain perhaps, undergoes the most rapid changes of any one organ of the body, and it is not surprising that it becomes the seat of disease, when any predisposing cause manifests itself, and that convulsions and congestions should sometimes occur. The cerebral organ, at the time of birth, is said to be very crude and imperfect, and as it usually attains to completeness in its parts in about a year, the metamorphosis must be very rapid, and the vital energy exerted very great. Add to these conditions any disturbances of a sympathetic or local nature, among which may be classed those produced by teething, and the transition from health to disease, in this sensitive organ is easy. These above cited morbid conditions, have been mentioned as being among the most fatal of all the diseases accompanying dentition. The nervous system is usually involved in these disturbances when dentition does not proceed normally; but as it is not my present purpose to attempt a description of all the phenomena of dentition, my comments must be brief. Suffice it to say, that the latter manifestations are characterized in their mildest forms, by spasmodic motions of the face, eyes, arms, etc. If extending in their effects to the brain, perhaps, in combination with febrile or other symptoms, they may induce restlessness, sleeplessness and fitful slumbers, with their attendant *little horrors*, such as frightful dreams, etc., or if they become violent, may lead to very serious consequences. The most common of the local diseases, are those of an inflammatory nature, the effects being a fullness and tenderness of the gums, accompanied by heat and fever, the consequence of an increased flow of blood to the parts involved. These symptoms may vary in intensity, or disappear altogether to return again, either in a greater or less degree, when the interval between the first and second stages of the process shall have elapsed—the former, being considered the period when the absorption of the margins of the alveolus produced by the pressure of the crown takes place, and the latter, when the tooth having erupted therefrom, makes its way through the gum.

But to quote the words of Dr. Ellis, "Teething in the sense we are now considering, does not encompass all those beautiful and intricate processes concerned in the evolution and development of the germ, but is conventionally restricted to the period when the teeth and surrounding tissues are involved in those mutations designed to liberate the organs from their coverings, etc."

It is only in cases of difficult or retarded dentition, or when the diseases to which the infant may be predisposed are excited by the process, or the local structures are involved in diseased action, that any interference is called for, and then the treatment may be constitutional or surgical, one or both, according to the requirements of the case.

Most writers whom I have consulted, are agreed, that under certain conditions, incising the gums is productive of benefit. What, in brief, are those conditions?

First. When local depletion is required in order to relieve the pain produced by inflammation, as seen in the tumid, tense and injected gums.

Second. When the gum is prominent and distended over the advancing tooth, as indicated by its membranous appearance, so as to cause unfavorable symptoms by the local irritation.

Third. *When the tooth seems retarded in its approach to the surface, while the condition of the diseased gum remains unchanged and prolonged, general or constitutional disturbance is the effect, no abatement being had for days or weeks.

Fourth. When, during the process of eruption of a tooth, catarrh, or diarrhœa, or fever is excited, and ceases immediately on the piercing of the gum by the imprisoned organ.

Fifth. If, when the process of dentition is progressing rapidly, convulsions ensue without any apparent cause. When our object is to free the tooth from its investment, the incision must be of sufficient depth to sever the gum and capsule over the crown. If an anterior tooth, it must be made transversely—near the cutting edge, but over the labial surface, until the instrument reaches the enamel, which may be distinguished by a grating sound, and sometimes by a crackling report, on the sudden rupture of the investing membrane, as when the tension is severe. If a molar, the incision may be crucial, and directly over and through to the enamel and grinding surface of the crown, or it may be made from

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* For the third, fourth and fifth condition, as above stated in substance, see West on the Diseases of Infancy and Childhood.

the anterior lingual to the posterior buccal cusp, and from the anterior buccal to the posterior lingual cusp, or vice versa. When our object is to reduce the inflammation, the scarification should be superficial, though a repetition is sometimes necessary. Great relief is often afforded by this local treatment—and Condie, Harris, Tomes, Dewees, Bond, West and others, unite in a recommendation of it under proper conditions, and when occasion calls, though doubtless, it is sometimes carried to excess.

The objection that lancing the gums retards the process of absorption, owing to the induration of the incised parts, has long ago been found to be without force. Also, that injury to the enamel of the tooth is likely to be caused by contact with the blade of the instrument, is answered by the fact, that the enamel is already hardened sufficiently at the time proper for the operation, to resist all injury from such a source. That it is a barbarous practice is without weight, for the pain produced is slight, while the relief afforded is immediate. Time will not admit of a consideration of the constitutional treatment necessary in cases involving the sympathetic diseases of dentition, neither is it called for at the present time; but, if this period is thus shown to be not unfrequently attended with so much pain and danger, while it has such an influence upon the future of the organs with which the dentist has to deal, ought it not to be to *him* an era of peculiar interest? As the perfectly organized body is dependent in a great measure, if not wholly, upon the proper performance of every physiological function, all means possible should be adopted to prevent an occurrence of those causes which militate against the normal processes of development of the teeth and osseous system, which being so closely allied in structure, draw their producing material from the same source.

Among the most important of these means, may be mentioned proper diet, exercise, cleanliness, pure air and an equable temperature. Imperfect formation of the teeth and maxilla, are very likely to coexist, as well as *protracted* development of the teeth and osseous system, and if the *former* appear in regular order, both as to time and place, they afford the best evidence of a normal development of the *latter*. "Protracted teething, retardation of the closure of the fontanels, and retardation of walking, usually go hand in hand," says Jacobi, and according to Eichmann and others "the large fontanel has finished its entire and permanent ossification," about the time of the completion of first dentition.

There are certain average periods, in which the eruption of the teeth takes place, commencing with the temporary about the fifth month of infancy, and terminating from the twenty-fourth to the thirty-sixth, and though there is considerable variation from these periods, healthy children are supposed to observe a certain degree of regularity in the process.

Eichmann. *As the result of four hundred observations on dentition, gives the following as the average time for the appearance of the deciduous teeth: The inferior incisors, from the seventh to the eighth month of infancy; the superior incisors, from the ninth to the tenth; the anterior molars, from the twelfth to the thirteenth; the canines, from the sixteenth to the eighteenth, and the posterior molars, from the twenty-second to the twenty-fourth month. He reports a few in which the first tooth did not appear until the twenty-second month. I know of a German child who cut no teeth until twenty-two months of age, and in that case dentition was completed within twenty four months from birth.

Cases of long delayed dentition are not wanting, though fortunately rare, such as that reported by Merei, †of a child who, at the age of six years was toothless, the large fontanel closing at four, and one observed by Churchill, ‡of a child whose first teeth did not appear until the seventh year.

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* JACOBI: On the Irregular Development of the Infantile Cranium.

† A. SCHOEFF MEREI: On the disorders of Infantile Development, etc. London, 1855.

‡ FLEETWOOD CHURCHILL, M. D.: Diseases of Infants and Children.

How are we to account for the retardation of the appearance of the temporary teeth, in cases like the foregoing? Is the blood deficient in bone producing material, and is the eruption of the teeth dependent upon a change in its constituents, which shall effect a deposition of lime salts in sufficient quantity to build up these structures? This would seem to be the case if the absorption of the alveolar margins, and gums confining the teeth, is dependent, as is generally thought, upon the pressure exerted thereon by these organs in the process of their general growth and development, as in the enlargement of the crowns and lengthening of the roots. In the case cited by Merei, the fact that the bones of the cranium were late in their development, as well as the teeth in their appearance, would also seem to favor the conclusion of a deficiency in the system, of ossific matter, as a cause for the late appearance of the latter. In regard to the absence of a single temporary tooth, usually present, Tomes says: "We are as little able to account for it, as to determine why twenty, rather than a smaller or greater number constitutes the normal series." Concerning the explanation of the latter phenomena, the *absence* of a single member from the usual number, we must, of course, look for a different explanation than the one just given for the *retardation* of the eruption of *all* the teeth to a late period, as a deficiency in any of the elements of which tooth structure is composed, would not be likely to be confined in its effects, to the space left vacant by the absence of the missing organ. In those very rare instances of persons who from infancy to life's close were edentulous, it would be gratifying to know whether there existed a normal or abnormal, a perfect or imperfect development of the osseous system generally.

But this paper is too long—longer than was anticipated at the commencement, though I have for the sake of brevity, viewed my subject from a few stand-points only.

That anything new should have been presented, by one who makes no pretention to anything more than very modest attainments in this branch of study, could not be expected. But as the organized body—the temple of God—made in His image, like an edifice of fair and beautiful proportions, may be seen and faintly comprehended as a whole, and yet not in all its aspects, because every vantage ground is not, or can not be appropriated, or some projecting angle, or cornice or column, hides from the eye many beauties of design or finish, which combine with these to form the perfect exterior, and while your soul must enter, would you behold the more wonderful adornments and luminous inscriptions within, so must it be with every mystery of life, as you gaze from every rising slope, and enter so far as may be into the spirit and interest of the subject, guided by the lights which have been placed about you, by the labors and the struggles of those who have gone before.

The mountain top must be reached before "all the kingdoms in the world" of vision, shall be spread out before us, with their glittering splendors. But how many have gained the summit? None! Only the infinite mind can fathom the mysteries of being, and the all-seeing eye penetrate the darkness to an unclouded day.

But, glimpses even may serve as encouragement.

Truth never wears out, and knowledge, like the diamond, increases in brilliancy by friction with its own disintegrated particles. Let us be "ever ready to come to a *knowledge* of the truth." Let no criticisms be withheld, for by such—kindly given and received, is it, that a healthy stimulus is afforded to the sluggish intellect, and aspirations excited that may add tone and vigor thereto, though those aspirations be not fully realized.

Much will be accomplished, should they lead to a more thorough investigation among members of the profession, of a subject which presents an ample and inviting field of labor.

DENTAL EDUCATION.

BY H. SCOTT.

It is a matter of pride to every dentist who loves his profession, to know that so much is being done to enlarge and popularize dental science. The efforts to this end are seen in colleges for the special preparation of the mind and hand for professional duty; in the extent and ability of dental literature; and in the formation of national, state, and district co-operative and mutual aid societies. In the van of all these movements are men of high mental and educational ability. We have also with us a large amount of inventive genius. The plan of education for dental colleges is broad. A man can not graduate in any of our institutions of learning, with less than a respectable acquaintance with anatomy, physiology, chemistry, pharmacy and therapeutics, in addition to a thorough knowledge of all the specialties of dental theory and practice, besides being a respectable English scholar. He must also show in the laboratory a respectably constructive and manipulative ability, and with all, fill the measure, pretty nearly, of a gentleman in his sphere of life. This is the high stand our colleges have taken, and is all well and right. With every meeting of societies, as also with the monthly and quarterly appearance of our periodicals, new lights are emited. Some new and better methods of doing things have been found by the pioneers of the profession, and with few exceptions, are contributed to the common stock. And thus, within little more than a quarter of a century, has the profession of dentistry come up from obscurity and almost contempt, to rank with the learned and popular institutions of the age. There is no movement of the nineteenth century that has equaled ours in the rapidity and value of discovery, and successful practical application to the comforts and requirements of man. These are the facts that stimulated and encouraged us all to still greater and more useful achievements. This is all well; but are we not delinquent in plans for the required

EDUCATION OF THE MASSES?

How this is to be done, is the question to be talked over. We might prepare and publish for the people such facts as they are most interested in understanding, and the knowing of which would render the dentists professional intercourse intellectual, and mutually agreeable, besides lightening his labors, and at the same time, increasing his pecuniary interests. The truth is, that with the exception of one or two in one or two thousand, the people know less of their teeth, physiologically, pathologically or remedially, than of any subject that concerns their welfare; and this is true of large numbers of both sexes who, upon almost every other question are well informed. How many can any operator find among his patrons, even the best educated and most intelligent of them, who can tell for their lives what the teeth are made of? Where will you find one who knows that every tooth has a nerve, and an artery, and a vein entering at the point of every root, through an opening sometimes too small to be seen with the natural eye, and all sheathed with an exceedingly delicate and sensitive membrane, and that these widening out in the crown, form the pulp or nerve of the tooth, as it is common to say. A very great many people, otherwise intelligent, believe to day that every tooth has a worm in it, which causes toothache by biting, perhaps, or by wiggling its tail. We often hear people speak of the worm in their tooth. It is due to everybody that has teeth, that they should be instructed in the anatomy, physiology and pathology, as well as cures of the teeth; and also, that being connected with the general system by deriving their nerves from the same trunks that send branches to the ear, face, scalp and other parts, morbid conditions of them often induce severe pain in remote parts, by nervous sympathy. They should also know that inflammation of the investing membranes is sometimes the cause of the most intense pain.

Who that has been a dentist a few years has not been almost daily enlivened with the following and similar questions: "*Doctor, do you know anything that is good for aralgy?*" You examine the mouth and find the source of the "*aralgy.*" But that can't be possible, for "*the tooth has never ached,*" and before you can arrive at an understanding, and do what the case requires, you will have consumed as much time as you should consume in relieving two or half a dozen cases. And then, "*I don't think its toothache; I think I have taken cold.*" *And,* "*why doctor, how can a tooth ache when it has no nerve in it?*" One will insist that he never shed his first teeth, another that he has double teeth all round, and occasionally you find one that "*has his third set.*" Well, this is all excusable, for none of us know anything till we have learned it.

A liberal and general special education of the whole people, on all matters concerning the teeth and their cures, would also sooner and much more effectually rid society of incompetent and mere mercenary operators, than any laws can do. I rather doubt the ultimate success of laws regulating medical or dental practice. We shall see in time, but my observation has been, that a majority of the common or non-professional people, have been inclined to regard all such legislation as partial and intended to favor the few. I take it for granted that every body is aware that the people, as a rule, are impatient of legislation conferring special privileges on societies or parties. Of one thing I think I am sure, that there are as many quack dentists to-day as there were before the existing dental law was passed, and I know of no way on earth to make them less, other than starving them out. Dentists can not become informers, for that would be jealous persecution. The people will not present them, but they would let them alone if they could duly and intelligently understand that their personal interest would be served in doing so.

I have sometimes thought that a dentist who would keep in the straight and narrow way, should attend not less than two methodist camp meetings each year, if he would not fall from grace, or, on the other hand, that he might be converted over again as often as he lost his religion. It is less than a week since, that a lady called at my office with her two daughters, of 15 and 13 years respectively. I have had charge of this lady's teeth, as well as those of her husband, for more than twenty years, and could as easily have conceived of any event in the world transpiring, as that they would have taken their daughters to any office other than mine to have their teeth filled, or for any advice concerning them. I had a right to feel and to believe so, for they have always spoken of me as a friend, and have counciled their friends to come to me for professional services. What was my surprise and mortification, as well, on finding that the girls had been thirty miles from home attending school, and had found a dentist who assured them that amalgam was far better every way to fill teeth with than gold, and actually, with the approval of their father, had some incisors with small cavities filled with an imperfectly prepared amalgam, which was already of an inky color. I felt then, and so expressed myself to the mother, that self-respect would require me to withdraw from my profession in very shame, and never touch another tooth while I lived, but better thoughts have since prevailed. And there are many such trials of patience. I could write a volume about them. A lady, whose teeth I filled thirty years ago, sent her daughter recently to have two incisors filled. She would not allow the file used. Somebody had told her that the file would break the enamel.

I spent a reasonable length of time in trying to satisfy her that the ragged and crumbling borders must be trimmed back to ensure successful filling, but I could not overcome her prejudices, and was obliged to dismiss her, though she was above twenty years of age. I suppose every dentist has his share of such experiences. It must be to an educated people, at last, that we are to look for the final success of our profession; and let us see finally how such education can most effectually be secured.

Every educated dentist could write out the very lessons important to be learned, but how could they be printed and placed in the hands of every family? Newspapers will not, and should not publish such matter without pay, and who can afford to pay for so much printing out of his own pocket. But suppose such literature were distributed gratuitously, how is its study to be insured while Bonner's *Ledger*, the *New York Weekly*, and hundreds of such sheets, are sent off by the car load to fill every house in christendom with cheap reading. It would be almost a marvel to-day, if a single house could be discovered, where these frivolous, if not directly demoralizing sheets do not constitute the greater part, if not the entire family reading, while sensible books, including the sacred volume, are peacefully corroding away on the shelf. The infatuation for this fictitious and low literature is appalling, and disreputable to an enlightened people. Think of our women chiding their husbands and sons on account of their tobacco and lager, and then think of their minds being chained down to the low thoughts and caricatures of human nature, that make up about the sum total of the cheap literature of the day.

If any good is to be done in the way of elevating the public mind up to an intelligent understanding of the advantages of dental science, and its practical utility and application to the requirements of the mouth; I apprehend that it must be accomplished through the instrumentality of our common school system. As the world is now, men and women have no time to devote to useful study. The acquisition of money requires all the time of nearly every person, leaving just interval sufficient for sleep and the reading of the *Ledger*, *Weekly*, etc. Men and women ought to be educated in the art of taking care of their bodies, and of preserving the best physical health; for without sound organisms, there can scarcely be sound and vigorous minds. The public funds should pay for the public education, and this should include the study of the teeth and their diseases and remedies. In no other way does it seem possible that this end can be accomplished, and that the study may become a part of common school education. Dental associations should work to awaken the attention of legislatures.

Dental Register

CAUSES RETARDING DENTAL PROGRESS.

BY G. E. CORBIN, M. D.

I assume the position that I exist, and that I did not create myself; that thousands of other objects about me, both animate and inanimate, from the most minute to the most ponderous within the range of human vision, exist, and that they did not create themselves; hence, I infer the existence of an all wise, and all powerful Creator.

I assume the position that such a Creator will subject the objects of his creation, to the control of perfect and *immutable* laws.

So intimate is the relation existing between these objects—so great the dependence of one upon each and all the rest, the blade of grass upon the dew drop, our earth upon each of its fellow planets and the sun, that no single law of nature can be altered or for one moment suspended, without reducing the whole to the incomprehensible condition of a chaotic mass. Machinery like this, the possessions of an all wise Creator, will certainly ever be placed beyond the possibility of being tampered with, by erring, finite mortal man.

In other words, it is utterly impossible for man to violate, accelerate, retard, change or alter in the least degree a single law of nature.

It is just as much in conformity to nature's laws that a man who, from a state of beastly intoxication, passes a severe winter's night in a gutter, shall be frozen and loose his limbs or his life in consequence, as it is that a man who drinks cold water, retains his senses, and sleeps in a comfortable bed, shall escape such a calamity.

Man can not force water to run up hill to turn his mill; but, in its downward course, in obedience to the force of the attraction of gravitation, the ingenuity of man may trust in the buckets of his water-wheel, and thus utilize the power nature has supplied. He can do nothing more.

Nature is our only school—our only instructor; and he who possesses the most extensive and accurate knowledge of natural laws, is best fitted to discharge the duties and enjoy the pleasures of life.

As the longest life is far too short for the most profound intellect to grasp any considerable portion of the wisdom of nature, by mutual consent the field has been divided and subdivided, and allotted in sections to persons according to their choice of occupation.

A thorough knowledge of the minute structures, functions, etc , of plants in general, constitutes a botanist.

A knowledge of the action which the ultimate particles of matter exert upon each other, constitutes a chemist.

A knowledge (obtainable only by dissection) of all the apparent properties of organized bodies, constitutes an anatomist.

A physiologist is one who is familiar with the functions of animals and vegetables; that is, with the phenomena, the aggregate of which constitutes life.

A knowledge of so many of the general principles of botony, chemistry, and other kindred sciences as are applicable to his pursuit, constitutes an agriculturist.

A knowledge of chemistry, anatomy, physiology, pathology and numerous other kindred sciences, constitutes a physician.

In addition to the general knowledge necessary for the successful practice of medicine, a dentist should possess no inconsiderable mechanical experience in the use of instruments, and the working of metals under varying circumstances.

Before assuming that *any* causes are at present retarding the progress of dental science, it becomes necessary to briefly inquire into the history of its origin and subsequent development.

"The practice of medicine must have everywhere arisen from the accidents and infirmities to which mankind are liable. Some rude appliances to wounds and injuries, some equally rude observances in cases of internal disease, are common among the most barbarous people. The idea that disease is caused by the anger of superior and invisible beings, placed its treatment in the hands of the priests, and the same idea caused that treatment to consist mainly of superstitious rites."

Previous to the time when intercourse with Greece became common, the attempts made at Rome to cure diseases, for a period of six hundred years, according to Pliny, consisted mainly in superstitious observances; such as charms, incantations, the erecting of a temple to Apollo to stay the ravages of a pestilence, celebrating public games, driving a nail into the capitol, etc.

Though this is the record of the proceedings of a people who inhabited this earth more than two thousand years ago, similar practices *now* prevail among our North American Indians and other barbarous people.

During the primitive ages of the world, anatomy was not cultivated as a science, and hence, the art of surgery was necessarily undeveloped.

In later ages, when science was appreciated, and medical men felt the want of a correct knowledge of the human organism and its physiological characteristics, religious scruples forbade the opening of the human body to inspect the viscera.

Galen, even, with all his notoriety for medical attainments, so late in the history of our world, as the second century of the Christian era, was confined to the dissection of the inferior animals for the prosecution of his anatomical studies.

Following Galen's time, for nearly one thousand years, during the so-called middle ages, the practice of the healing art being invariably in the hands of priests, whom a canon of the church forbade to shed blood, surgical operations commonly fell into the hands of an inferior and ignorant class of barber surgeons, who frequently were itinerants.

Mandini di Luzzi, Professor of Anatomy at the University of Bologna, first publicly dissected two human bodies in the presence of medical students, in 1315; but not until the sixteenth century, did the study of human anatomy from actual dissection become general in the medical schools, and then in the schools of Italy.

As superstition gradually gave way before the dawning of science, that is, the unfolding of natural laws, remedial agents began to be administered according to a knowledge of cause and effect; and then it was that the foundations of the professions of medicine, surgery, and dentistry were laid.

It is less than a century since the art of dentistry has taken the rank of a distinct profession.

From advertisements in the newspapers of 1703, the practice of the art of making teeth and cleaning them, appears to have been in the hands of silversmiths or jewelers.

Artificial teeth at this period, like those of the Egyptians in the time of Herodotis, twenty-three centuries ago, were probably carved from wood or ivory; as we do not find it upon record that the manufacture of porcelain teeth was even suggested prior to the year 1728. Teeth of this material were first actually produced, though necessarily crude in shape and color, in France, in the year 1776.

To American industry and culture, *during the last quarter of a century*, is to be attributed the very near approach to perfection, now manifested in the manufacture of porcelain teeth.

As the progress of dental science during the past century, and especially during the last quarter of a century, has been so much more rapid than at any previous time during its history, the wisdom displayed in the selection of my subject may be thought very questionable.

It appears in evidence, however, that the development of the different branches of the healing art, as is likewise true of all other sciences, has held a direct relation to the intelligence of the period.

I maintain, therefore, that the causes, or rather *the* cause now retarding the progress of dental science, is a lack of sufficient knowledge to progress faster—in a word, *ignorance*—the ignorance of those professing to practice dentistry primarily, and the consequent ignorance of those procuring dental operations secondarily.

Were the masses of community not ignorant of the advantages of dentistry—of the *possibilities* in dentistry, these ignorant dental pretenders, these excrescences on our young and otherwise symmetrical body, just now pulsating in every fibre with the glow of healthful progressive stimuli, would soon disappear either by excision, or resolution.

It is a trite maxim in commerce, I believe, that the supply is very speedily regulated by the demand.

I believe this law of supply and demand is the key with which to unlock the question now under consideration.

Educate the people to demand a supply of a better quality. Each community demands dental work consonant with previous experience, according as it has or has not received *correct* instruction.

There are two processes of instructing the community: direct and indirect. The direct consists in calling the attention of all with whom we come in contact, either personally or through the public prints, to the natural laws governing the subject we wish to teach.

The indirect consists in the making of proper exertions to restrain, and if possible, prevent the making of false statements, and hence, the formation of erroneous conclusions.

That faculty of the mind denominated *reason*, can not be exercised without an object.

A young child must know that fire exists, and something of its nature before he will refrain from placing his hand upon a hot stove.

Propositions which set the reasoning faculty of the mind at work, may be either true or false, good or evil; if false or evil, much time will necessarily be consumed, and labor expended in sifting out and isolating truth, which alone is the basis of all knowledge. For this reason if for no other, intelligent parents are always particular to never deceive their children. Much of the time of mature life is consumed in unlearning the errors of an early education.

To guard against teaching the youth of the country error and vice, laws have been generally and wisely enacted requiring teachers of public schools to provide themselves with certificates of qualification.

Indeed, this matter of fact or falsehood is considered of so great importance in this, and all other civilized countries so far as I can learn, that the making of an incorrect statement under certain circumstances, to twelve men instead of an indefinite number of children, constitutes one of the greatest criminal offenses.

Judged by this standard, where shall we place in the moral scale those who profess knowledge not possessed, and thereby obtain money under false pretenses for the *destruction* instead of preservation of valuable vital organs, in attempting to treat pathological conditions not understood?

If only one human being existed upon the face of the earth, his own fancy would be the only human law necessary for his government.

When a number of persons reside in such proximity, either close or remote, as to make it desirable to have intercourse with each other, it becomes necessary to observe, and by mutual consent establish such regulations as will prevent one person, if disposed, from interfering with the rights of another.

In this principle we observe the origin of law.

As conscientious persons entertain different views of the proper mode of arriving at the same object, and designing persons object to arriving at it by any mode, it is seldom possible to pass a law by a unanimous vote; hence, the custom of yielding the desires of the minority to the opinion of the majority.

It is no restriction upon liberty, or bar to the claims of a free government, that each individual in it can not be allowed to always follow to the extreme the dictates of his own caprice.

Such a course would speedily lead to lust, brigandage, and anarchy; and constitute a state of barbarism rather than civilization.

It is no argument against the justice of the law prescribing punishment for theft and murder, that thieves and murderers voted against it.

At Ovid, in Clinton county, Michigan, in August last, a steam boiler which had been in use only about one month exploded, and killed three men and badly mutilated a fourth, the so-called engineer.

At the time of the explosion, there was no steam gauge in use, and the lever holding down the safety valve suspended various pieces of old castings of unknown weight.

It is enough that the persons in charge of such powerful engines of death and destruction, have the ability to rake out the ashes, fill the arch with wood, and open the valve to let on steam?

If I chance to own property and occupy an office adjoining such an establishment, am I not clearly entitled to the protection accruing from a judicious management of its machinery, by a person possessing a full knowledge of all the mechanical principles and natural laws involved in the premises?

Should I not have the legal right to demand such protection?

On the other hand, should he not have the legal right to demand that I possess the requisite knowledge, before presuming to prescribe for his physical ailment?

Should we not each have the legal right to demand that our neighbor, the druggist, possess *some* knowledge—yea, a *thorough* knowledge of the remedial agents he compounds in response to the requirements of my written prescription?

I am well aware that a class of persons exists, small though it be, who maintain that such laws would tend to a species of monopoly—maintain that in our free country we should allow any person to engage in any lawful business he may desire.

The absurdity of assuming so broad a position under the cloak of freedom, was evidently appreciated by our legislative bodies in founding our common school system, when they enacted laws providing for boards of school inspectors, to ascertain and certify to the qualifications of persons desiring to teach.

The absurdity of so broad a position *should* be appreciated, by all who have observed any one of the numerous cases of death resulting from incompetent druggists and druggists' clerks dispensing valuable remedies in poisonous doses, and otherwise harmless remedies in poisonous compounds.

The school law of the State of Michigan, provides that the Superintendent of Public Instruction *may*, and the County Superintendents *shall* examine all persons offering themselves as teachers, etc.

In addition, each township has a board of school inspectors, who may not only grant certificates, but re-examine and annul them.

An appreciation of the necessity for an especial preparation for a particular business, is fully implied in the following language, which is that of school law now in force in this State:

"The Board of Instructors of the Normal School, shall give to every graduate receiving such diploma, a certificate, which shall serve as a legal certificate of qualification to teach in the primary schools of any township in this State," etc.

On page 316, of the Session Laws of the State of Michigan, for the year 1863, I find the following language:

"The people of the State of Michigan enact, That any Circuit Court may grant to any citizen of this State, of good moral character, and of the age of twenty-one years, a license to practice as an attorney and counselor at law, and solicitor and counselor in chancery, upon an examination at any term of such court, in the presence of the Circuit Judge, in open court, when satisfied that the applicant possesses sufficient legal learning and ability to discharge the duties of such office: *Provided*, That such examination shall in no case be required when said Circuit Court shall be satisfied, by the production of his diploma, or otherwise, that said applicant is a graduate of the law school of the Michigan State University."

From the language of these wise and just laws, we see that where the moral and intellectual culture of their children is concerned, in the one case, and the very mighty question of pocket, in the other, the people of the State of Michigan, in their majesty and wisdom, step forth and interpose in behalf of qualification.

As intellectual culture and pocket, are always secondary to life and generally to health, we will see what the statute provides in *this* direction.

As regards the qualification of persons in charge of stationary engines, it makes no provision whatever.

The numerous accidents resulting in a fearful destruction of life and limb, all clearly the result of incompetency, together with the great facilities our university affords for acquiring suitable knowledge in this direction, lead me to believe that this omission is clearly the result of an oversight.

With two medical colleges in our State, and one directly under its fostering care, 'tis but natural to infer that our statute law will be found such as at least to *encourage* young men to qualify themselves before engaging in the practice of the healing art.

I find the most direct, and nearly all the law relating to this question, in the following language:

"If any physician or other person, while in a state of intoxication, shall prescribe any poison, drug or medicine, to another person, he shall be punished by imprisonment in the county jail not more than one year, or by fine not exceeding five hundred dollars."

Nearly all the law we have touching the responsibility of the apothecary, is in the following language:

"Every apothecary, druggist or other person, who shall sell and deliver any arsenic, corrosive sublimate, prussic acid, or other substance or liquid usually denominated poisonous, or any tartar emetic, without having the word 'poison' and the true name thereof, written or printed upon a label attached to the vial, box or parcel, containing the same, shall be punished by a fine not exceeding one hundred dollars."

Would it not be wiser and far more beneficial,—would it not in numberless cases prevent human suffering and unnecessary sacrifice of human life, to insist upon a reasonable degree of qualification, rather than to prescribe a mode of punishment for a drunken man who in attempting to practice medicine without any knowledge of it, prescribes poison?

That engineers, druggists, physicians, surgeons and dentists, who to a great extent hold the lives of community in their hands, should be competent and considerate, I think is self-evident.

That each man, woman and child, constituting our entire community, needs protection from impending harm in each of these several directions, is obvious.

That an earnest appeal by the community to our legislature, for such protection will be successful, can not for a moment be doubted.

VITAL PHENOMENA.

BY J F. SANBORN, M. D.

We read that God made the earth out of chaos, which is the chaos from which all organic substances have their origin, and to which they must all return.

Man stands pre-eminently at the head of creation, and is the being for which all other things were made.

What is the difference between a man while living, and after he is dead?

It is life. What is life?

What is death?

Is it the presence of the soul in the body, that constitues this difference? Is it the presence of a soul in an animal that makes the distinction between a living and a dead animal?

Is the soul and the mind the same, and is that the vital importance? If so, is the idiot destitute of the thinking power, is he a living being? Or is the animal, because it has a mind, therefore, equal with man?

Neither the presence of the soul or the mind, constitutes, physiologically speaking, animal life.

Man in the beginning, was created in the image of his maker.

In what sense was he created in the image of God?

First. God is a trinity. The Father, the Son, and the Holy Spirit; these three are one God.

Man is a trinity, composed of body, mind, and soul; physical, mental, and moral, and it requires all three to make a perfect man.

An animal has the physical and partial development of the mental faculty.

Secondly. Man was created in the image of his Maker, in *contradistinction* to every other thing He had created, and had endowed with life. Man was created PHYSICALLY as well as *morally*, IMMORTAL. Geology teaches that animals died before man was created.

Man in his primeval purity, man as an immortal being, was necessitated to eat and drink, to sustain life, then, as now, but with this difference—those actions that go to make up animal life were in perfect balance.

Undoubtedly, God explained to Adam his physiological, as well as his moral nature; that his animal or physical life consisted of a perfect balance, being maintained in those changes that are continually taking place, and embraced under the four classes of vital changes, known as alimentation, assimilation, disintegration, and depuration. He taught him what food would meet these conditions, and of such he might freely eat, such aliment is represented under the figure of the tree of life.

God taught him that so long as he confined himself to such food, a perfect balance should continue indefinitely in the vital changes, and he should always be in the prime of life, and sickness, pain, or death would have been impossible.

God also taught Adam what class of matter was not food, and was represented under the figure of the tree of knowledge; and He explained how by the use of such matter, the perfect balance in the vital changes that constitute "life" would be destroyed, and by being destroyed, would sometime cease.

The difference, physiologically, between a man living or dead, is in the former the vital changes are taking place, but in the latter they have ceased.

Life, then, is the sum of all the vital changes, and death their suspension. Life is action, death inaction.

In life there is a continual change of matter as food, to the living tissues, and from the living tissues back to the chaos from whence the food was derived.

Death is the suspension of such changes.

God is His own interpreter, and He has made it plain.

Adam by his first transgression, fell physically, as well as morally; disease, pain, and death are the result of this loss of balance in the vital changes.

This condition exists in us by nature, but more so by our practice, for we physically as well as morally follow the teachings of a second lesson, taught Adam by a very different personage from the Divine Creator.

He said to Adam, eat that which God has forbidden, that which He has said is not for food, and which He has said tends toward death; eat that which pleases the eye and gratifies the taste, for ye shall not surely die.

The Liebig theory, that life is a series of chemical changes, wherein matter becomes and ceases to be of the cell structure of animal life, is not in accordance with our ideas of things, but rather there is a vital principle, that elevates and controls matter, with which it becomes associated, in accordance with certain fixed laws, which may be denominated the "LAWS OF LIFE."

Some authors claim that the controlling agency of vital action is electricity, and there are some grounds for such a belief, but of this "let everyone think as he pleaseth."

When vital action ceases, chemical action begins; when chemical action begins, vitality ceases.

Chemical and vital action are incompatible. Vital action may not be in violation of chemical law, but it is higher, and tends upward in its action; while chemical action is downward towards the inorganic condition of matter.

The chemical constituents found in vegetable and animal tissues, are very different in their structures, as found in organized matter, from what they are after they have passed through chemical decomposition.

Take for illustration, sacharine matter, as found in the fruits or cereals. It not only pleases the taste, but it nourishes—it is food; the chemical decomposition of sugar breaks down the cell structure, and separates it into carbonic acid gas and alcohol.

Sugar will digest and nourish, but alcohol will not; it is alcohol when received, it is alcohol in the system, and it is alcohol when it leaves it. It is like the prince of evil. There are no circumstances when you can turn him to any good account. He is evil, and not only evil, but that continually, and so of alcohol. It is broken down matter, and there are no circumstances in which it bears a natural relationship to vitality.

It will do to dissolve gum for varnish, or to burn in our lamps, or to preserve dead bodies in, but never should come in contact with living tissue, for it is antagonistic to vital action.

The continued chemical decomposition of alcohol, does not restore it to a normal relationship with vitality.

Vinegar is but *decayed rotten alcohol*, and it bears such an abnormal relationship, that the vital organs refuse to receive it only in the smallest quantity. Men have been known to boast that they could drink a gallon of N. E. rum in a day, without becoming intoxicated.

N. E. rum is 25 per cent. alcohol, this would make a quart of pure alcohol. This was done in the hottest portion of the year, when the pores of the skin were in the most active condition. The alcohol would pass directly from the stomach to the blood, and from there the lungs would remove a large portion of it, the kidneys would remove none of it, and the skin opened all its portals to allow it to pass. The brain and nerves would feel its hardening influence, which is as true of the living brain as that of the dead; and the finer feelings of those who use it become blunted as the brain becomes hardened. Every muscular fibre with which it comes in contact, feels its influence as a sensitive horse feels the whip, and the vital phenomena is abnormal.

And as the prince of darkness is given to false representation, not to use a more severe term, so alcohol is one of the agencies he uses to delude men to his snare.

But where is the man that can use a pint of vinegar a day, in any part of the year?

The blood is alkaline in its reaction, vinegar in common with all the inorganic or chemical acids, bears an antagonistic relationship to this condition, and it is very destructive to the blood corpuscles.

The acid that the system demands, must in common with all other articles of food, be of organic structure, that is, an acid of growth, as that found in all acid fruits.

The acid of the lemon when chemically decomposed, is known as citric acid, but the acid of the lemon, and the citric acid of commerce, bears the same relationship to each other, so far as vitality is concerned, as living and dead matter.

Weariness, resting and sleep, are among the vital phenomena that demand our attention.

A muscle is composed of a multitude of cells lying side by side, and joined end to end, the latter constitute the fibrilla or filament of a muscle. The fibrilla lying side by side, are separated by a fine gauze like structure, known as connective tissue. The fibrilla with the connective tissue go to make up a muscle.

The cells of the fibrilla are composed of a capsule, and the contents of the cell.

The power of a muscle to contract, is in the contents of the cell; and every action is accompanied with a breaking down of some cells.

Such matter having performed the end of its existence, bears an abnormal relationship to the surrounding living tissue; and if not removed, acts as a poison to it.

In animal life, between living and dead matter, there "is a great gulf fixed," however much may be the passage from the former to the latter, there is no passage from death to life.

Broken down cell structure, is as repugnant to the living tissues, as a corpse is to a living refined community.

Their immediate removal is essential to health, and the best interests of society.

Such matter is removed directly to the blood, and from there the various organs remove it—this action is depuration.

Exercise, within proper limits, and sunlight are the agencies most essential to health on account of their aid to depuration, and in many, if not all diseases, sunlight is one of the most important of all the hygienic remedies. Sunlight is as necessary to animal life, health and growth, as it is to the vigor and health of vegetation.

Let us have plenty of sunlight.

If in muscular action, the breaking down goes on faster than it is removed, it must accumulate as rubbish, and prevent free action.

This condition of things constitutes weariness.

Resting is the suspension of muscular action, which breaks down, until those already broken down are removed. This restoration in the balance, is the condition known as resting.

The continual breaking down and removal of a cell here and another there, without having them renewed, would soon stop all further action for want of whole fibres to contract.

When there is sufficient breaking down for nature to demand repairs, the condition is very different from that which is weariness; weariness is like rubbish in the way. This is like a want of tools to work with—a condition of exhaustion, and in a normal condition of things, is followed by a desire for sleep.

Natural sleep is the SUSPENSION of all *action* of *wakeful hours*, and the *concentration of all the vital energies to the* RE-CONSTRUCTION *and repair wherever it is wanted. Nutritious matter in the blood is changed into tissues of the body, and becomes a part of the living structure.* This reconstruction and repair of waste, is assimilation, *and takes place perfectly only during sleep.*

Stupor, that is occasioned by poisoning with alcohol or opium, is no more like true natural sleep, than counterfeit money is like the genuine; it may deceive those who do not know the difference, but at the bank, the headquarters of vitality, none but the genuine can pass.

Digestion of food and good natural sleep, can not both take place in a perfect manner at the same time, and if both actions go on at the same time, both will be imperfectly performed; dreaming and disturbed rest are the consequences, so

"To be easy all night,
Let your supper be light,
Or else you will complain
Of a stomach in pain."

Sleep is the grand restorer of brain, nerve and muscular energy. Take plenty of sleep, and say with Sancho Panza: "Blessed be the man who first invented sleep," but avoid the latter part of the quotation: "But cursed be the man with curses deep, that invented early rising," for one hour of sleep in the first part of the night is worth two after sun up.

The theologians are forever preaching against following nature. But the physiologist will say follow nature, the closer the better, and in no one thing more so, than in taking plenty of sleep in the natural hours for it. Those who wish to sleep in the middle part of the day, should do so before dinner, instead of after it. This is especially true of invalids.

Sleep repairs the waste tissue, in doing so it uses the nutritious matter stored in the blood; if from any cause we loose our usual amount of sleep, the blood is not impoverished by the removal of its nutriment, and there is not the demand for its accustomed supply—if food in the usual quantity is taken, under such circumstances, a rush of blood to an exhausted brain and a headache is the result.

Eating and sleeping should always be in perfect balance.

The wakefulness incident to sickness, is occasioned by the vital action being employed in removing broken down abnormal matter, necessary to restore the lost balance, and there is proverbially a loss of appetite, and the idea conveyed to the Doctor in an answer to his question : How is the appetite? is the system resuming its balance? the appetite being the thermometer, is often by the use of condiments caused to rise much above its normal condition, and a false information is the result. Do not loose sight of the idea that in sickness the action is in depuration, and not in assimilation.

Do not stimulate the appetite nor give food unless it is demanded by the cravings of a normal desire for food.

The first transgression, we read, was in indulging the appetite, which propensity has been handed down from generation to generation, till it may truly be said to be the great sin of the race.

Nutrition should be in exact proportion to the wants of vitality for growth, and to supply the waste, if it is much in excess of these, disease is the result.

The vital phenomena of "taking cold," is worthy of our consideration.

There are five outlets for waste matter, the bowels, the kidneys, the liver, the lungs, and the skin.

In order to perfect health these must be in full action, each doing its full duty up to the full demands of the system.

Taking cold is the inaction of the skin. The waste that should be expelled through it is retained in part, and acts as a poison, aches and pains are the result.

Good reasoning would indicate for the cure, that the skin increase its action until the balance is restored. Water is the great solvent of all organic matter, be it vegetable or animal.

Water is the vehicle by which all food is reduced to a condition that it can be used, and carried to where it is wanted to build up the waste tissues. It is also the vehicle to dissolve, to wash out, and purify the system of all waste matter.

Water, pure and free as God gives it to nourish his creatures and beautify his footstool, bears a natural relationship to vitality; it is kindly received and appropriated by it.

A warm bath is natures own remedy—it opens the pores of the skin, and increases its action, and aids it in its efforts.

A fresh animal membrane tied over the mouth of a phial containing salt water, and thus prepared, inverted in a glass of pure water, just deep enough to cover the membrane, will, in a short time, occasion the water in the glass to become as salt as that in the phial; the quantity of water in the phial will not be changed. Thus water applied to the skin, either in a warm bath, or warm wet cloths, will remove effete matter, and the cloths or bath will be filled with it, in the same manner as the pure water in the glass, is filled with the salt; and that too without occasioning exhaustion of vitality.

One organ acting for another, is known as doing vicarious duty. The inaction of the liver is often followed with sore eyes. The eyes for the time being, doing duty for the liver, to remove from the system that which should be removed by the liver.

The kidneys may, and often do vicarious duty for the skin.

Constipation of the bowels is often accompanied with effete breath, or sore eyes.

The administration of a cathartic would occasion the bowels to remove the offending matter, or a diaretic, the kidneys. But in such a course, aiding nature is not a "*grave*" error. The modus operandi of a cathartic, is readily perceived when viewed from the standpoint that all action is on the part of vitality, and that the cathartic like food is acted on by the vital organism.

The normal action of the small intestines, is to pass nutritious matter from within out, and on to the blood. They are lined with villi, so abundant as to amount to from 90 to the square inch in the upper portion, to 40 in the lower, aggregating 4,000,000.

The digested food does not act on the villi, but the villi act on the food, absorbing it as passing it along.

The cathartic does not act; it too is acted on by the villi, but instead of absorbing as in the case of the food, it is rejected as matter bearing an abnormal relationship, it occasions an antagonistic action.

Antagonistic action, whether of a nation, or of vital organism, is always exhausting in its character; a draft on the capital stock.

The villi not only refuse to absorb the abnormal matter, composing the cathartic, but they reverse their action instead of absorbing and passing it along as is the case of food; it is rejected, and nutritious matter that should pass on and nourish the body, is returned to the bowels, diluting the cathartic, thus protect themselves against its abnormal presence and unnatural influence, and it is hurried out of the system, each part lending a helping foot to get rid of it.

This is choosing between two evils, and curing one disease by producing another—which is false in theory, false in practice, and a "*grave*" fitting error.

RECAPITULATION.

Life is action, the sum of the vital changes.

Health, their perfect balance.

Cause of disease, the loss of balance.

Disease, natures effort to restore the balance.

Death, the suspension of all the vital changes.

All matter entering the system should be organic, and in its highest degree of development, and should under all circumstances of life, bear a natural relationship to the vital changes, and should add to the motive that propels the wheel of life.

Inorganic matter, and such as has had its organic character changed by chemical action, do not act on the vital machinery any more than does food, but it is acted on and occasions antagonistic action, and acts like a brake on the wheel of life.

All medicines are poisons, occasioning antagonistic action, they diminish an action in one part by increasing it in some other; but not in harmony with vital effort to restore the balance, but "cure one disease by producing another." They are a brake on the wheel of life.

In treating disease, see that all the outlets for waste matter are in full natural action, and restore the vital balance by the use of such remedies as bear a natural relationship to vitality. Remembering that natures law of cure, like natures law of health, is TRUE OBEDIENCE TO PHYSIOLOGICAL LAW.

ALLEGED CAUSE OF DEATH FROM NITROUS OXYD.

Dr. A. F. E., of Columbus, O., furnishes us the following statement in regard to the death of one of his patients, which it was alleged died from the effects of nitrous oxyd, administered as an anæsthetic:

"On January 10th, last, at 5 o'clock, P. M., Mr. Davis called at my office to have the ulcerated remains of an offending tooth extracted, and insisted upon having nitrous oxyd administered. Not being able to detect anything that indicated danger, I proceeded at once to administer the gas. He lacked the courage to inhale it. After several unsuccessful attempts, the gas was abandoned, and the roots extracted, Mr. D. being conscious all the time. He had inhaled of the gas not to exceed 1½ gallons, and after the operation, said he had felt no effects from the gas whatever.

Mr. D. had a subsequent illness of several days, but recovered sufficiently to be about and attend to business. A few days prior to his death, he went to Cincinnati on business and returned to Columbus, and had made his arrangements to start for Chicago, (his place of business,) the morning of his death, which took place February 2nd. He was sick but a few minutes. The deceased, I understand, was carrying at the time of his death, $30,000 life insurance, the greater part of which was taken out within the last few months, the last policy within a few weeks of his death. That would necessarily have submitted him to a pretty thorough examination by the examining physicians of the several companies in which he insured. They failed to detect the difficulty and accepted him.

The attending physician's affidavit reads thus: Died of heart disease, produced by inhaling laughing gas, etc.

Now, laughing gas is not an agent that will produce disorganization. Therefore, there must certainly have been some abnormal structure of that organ. Nitrous oxyd, like all other anæsthetics, is dangerous, and must be administered with discrimination. But it does not follow, that because anæsthetics are dangerous, that they must necessarily prove hurtful in all cases.

Considering the examination Mr. D. had passed by members of the medical profession, this particular case like others, would require superhuman skill to detect whether the subject might or might not have some organic defect or disease.

Now one of two things are true, Mr. D. must have disease of the heart, or the gallon and a half of gas killed him.

The gas was fresh, being made that day, and I have every reason to believe it was pure, for it was administered to other patients, with the most satisfactory results, as well as having taken it myself.

Strange to say, if a person has ever taken an anæsthetic, particularly laughing gas and dies subsequently, no matter how long after, the gas killed them or exerted a powerful influence in that direction. The simple fact that a person has taken an anæsthetic, does not immortalize them. Their chances of mortality, sooner or later, are just as good as they ever were. Some may say better. We will not presume to say.

Proceedings of Societies.

PROCEEDINGS OF THE TWENTY-SEVENTH ANNUAL MEETING OF THE MISSISSIPPI VALLEY DENTAL ASSOCIATION, MARCH 1st, 1871.

Society met in lecture room of the Ohio Dental College. Dr. W. H. Morgan, President, in the chair. Society adjourned after some informal conversation, until afternoon.

WEDNESDAY, 2 P. M.

Minutes of last meeting were read and approved, and the roll called.

Dr. Goddard, moved that absent members of the Committee on Membership be filled. (Dr. Rosson, the only member of that Committee present.) H. A. Smith, and H. McCullum were appointed to fill the vacancy. Dr. Canine, of Louisville, was presented by the Committee on Membership and elected unanimously. On motion, Dr. Wright was appointed to report the proceedings of the society, at a reasonable compensation. A discussion on the subject of the heavy and light mallets followed.

Society adjourned, to meet Thursday morning, March 2nd, at 9 o'clock.

THURSDAY, 9 A. M.

Society met according to adjournment.

President W. H. Morgan in the chair.

Minutes of the last meeting read and approved.

The following names were presented by the Committee of Membership:

Drs. E. Osmond, J. A. Stipp, Jno. Rabe, S. C. Harryman, Chas. Welch, J. R. Wilkings, R. E. Finley, C. S. Case, J. E. Cravens, W. T. Wallace, L. B. Welch.

A motion was made to vote on the whole list, and if one black ball be cast, the names be taken up singly and balloted for. Carried.

A black ball having been cast, the names were taken up singly. Dr. E. Osmond being balloted for, received ten yeas and nine nays. A two-thirds vote being necessary to elect candidates to membership, the name was dropped. The objection raised was for advertising as a steam dentist, and for unprofessional conduct toward other dentists. The rest of the names were then taken up singly, and all unanimously elected.

The subject of heavy or light mallets was then laid aside, and the next subject taken up, " treatment of soft tissues of the mouth."

Society adjourned till 2 o'clock, P. M.

THURSDAY, 2 P. M.

Society met at 2 o'clock, P. M. Dr. W. H. Morgan presiding.

Minutes of last meeting read and approved.

Dr. H. J. McKellops called the societies attention to the death of Dr. Peebles, of St. Louis, and Drs. Goddard, Taft and Rehwinkle, were appointed a committee to draft resolutions suitable to the event. On motion, Dr. Keeley and Dr. McKellops were added to the committee.

Dr. J. Taft gave information of the attempt to amend the Ohio State dental law, and of the failure of this attempt. He urged upon members from other States to work for the establishment of a similar law in their States. He informed the members that our law is at present on a firm basis.

Dr. Taft moved that a committee be appointed to draft resolutions of thanks to Dr. Brook and other legislators, for their efforts in behalf of the dental law—and Drs. Keeley and Smith were appointed on committee.

The next subject for discussion was then taken up, after which the election of officers took place.

President—H. A. Smith, Cincinnati.
Vice-President—J. F. Canine, Louisville.
Recording Secretary—C. M. Wright, Cincinnati.
Corresponding Secretary—Merrit Wells, Indianapolis.
Treasurer—J. G. Cameron, Cincinnati.

Society adjourned to meet Friday, at 9 o'clock, A. M.

FRIDAY, 9 A. M.

Society met at 10 o'clock. President, Dr. H. A. Smith, in the chair.

Minutes of last meeting read and approved.

Dr. Goddard, moved a re-consideration of the vote taken yesterday, excluding Dr. E. Osmond from membership, claiming that as he voted against his admission yesterday under a misapprehension, he desired to re-consider his vote. The vote was re considered. Dr. Osmond made satisfactory explanation. A vote was then taken, and he was elected a member. Dr. Thomas C. Fahnestock, of Cincinnati, was elected to membership.

The following delegates were elected to represent this society in the next American Dental Association, at White Sulphur Springs, Va.

Dr. J. F. Canine, Dr. Merrit Wells, Dr. J. E. Cravens, Dr. L. P. Meredith, Dr. R. A. Mollyneaux, Dr. A. O. Rawls, Dr. J. A Stipp, Dr. E. C. Sloan, Dr. Chas. Welch, Dr. R. E. Finley.

Dr. Morgan, the retiring President, delivered a short address.

Dr. Rehwinkle, offered the resolution that hereafter the incoming and newly elected President, shall deliver an address on the afternoon of the first day of our annual meeting. Carried.

The following Executive Committee was appointed by President Smith, viz: Drs. J. Taft, E. C. Sloan, and W. H. Shadoan.

Committee on Membership—Drs. G. W. Keeley, D. B. Wheeler, and P. G. C. Hunt.

On motion of Dr. Watt, the committee who have in charge the stereotype plates and copy right of this association, were allowed discretionary power to dispose of them for the benefit of the society.

On motion of Dr. Goddard, a vote of thanks was offered Dr. Morgan, the retired President.

The following resolution of thanks to the legislators was presented:

WHEREAS, Dental Surgery has demonstrated its claims to consideration as a branch of one of the learned professions; and

WHEREAS, In the State of Ohio, the profession has until recently been unprotected and unsustained by legal enactments, necessary for the highest attainment of usefulness; therefore

Resolved, That the thanks and gratitude of this association are due, and are hereby tendered to Dr. Geo. Brooke, of the Ohio House of Representatives, and to his associate members, for securing and maintaining the law for regulating the practice of dentistry in this State; an example of practical benefit to the profession and the public, that we would respectfully and earnestly recommend to sister States.

G. W. KEELEY, } *Com.*
H. A. SMITH. }

Adopted.

Dr. C. M. Wright read a paper on artificial dentistry.

Society adjourned.

* * *

PRESERVATION OF THE CADAVER.—According to M. Devergie, of the Paris School of Practical Anatomy, a mixture of three parts glycerin and one of carbolic acid injected into dead bodies, will prevent any unpleasant odor emanating from them for several months.

Editorial.

FILLING TEETH.

The process of filling teeth, requires for its efficient accomplishment great skill and care, very few who attempt to perform this operation, have a complete apprehension of all that is involved in it. The nature and peculiarities of the tissue operated upon, should be taken into account, together with all the favorable and unfavorable influences or circumstances that may be presented.

It is proposed in these lines to present two or three points in this operation, that are not generally observed, and the first is, that of filling teeth, especially the anterior, under glasses of a high magnifying power, or from two to three diameters.

We have for several years, used glasses for definition, but without any material magnifying power, and operated as well as we ever did, with the best unaided vision.

We have recently, however, been using glasses that magnify about two diameters, and find it very much easier to operate, both in the formation of cavities, and in the filling. There is far more precision in the manipulation, and more perfect results are obtained throughout. So great is the difference, that the cavities which were before annoying and very difficult to fill, are now filled with pleasure, and with a degree of certainty as to results, that before were very seldom experienced ; any one has but to test the method to appreciate its value.

In our experiments thus far, we have combined two ordinary sets of glasses, but a better appliance could doubtless be made, by arranging two or three lenses in one frame. This principle is as applicable and as useful to those who have not lost difinition by age or otherwise, as to those who have. We may refer to this subject again.

Another point in the operation of filling teeth, well worthy of consideration, is the ease and facility, with which all borders and margins of cavities may be protected by the use of heavy foils. In almost every instance, where the enamel has been cut away, and the dentine exposed about the orifice of the cavity in the preparation for filling, it should be completely covered by a heavy layer of gold. This can in all cases be done, by filling the cavity with gold in any form it may be desired, even with its borders, and then applying Nos. 60 to 80 gold foil. in plain pieces, single thickness, a little larger than the surface to be covered. Weld this thoroughly to the surface of the gold already introduced, then fold over the edge a little all round, and work it down solidly on to the edge of dentine and enamel. Apply successive layers of the foil in this manner, until a sufficient fullness is given to the entire surface of the filling, and a strong flange formed on the edge of the wall. Foot instruments of various forms will be required, for consolidating these single layers of gold, especially in proximal fillings. Without the right instruments, it will be useless to attempt this method.

It will oftentimes occur, in building up this surface portion, that unevenness of surface will occur, in spite of the utmost care. In order to remedy this, a thin separating file may be used, dressing the surface truly, then apply two or three additional pieces, consolidating all with the serrated condenser, except the last piece, which should be condensed with a foot burnisher. If care has been exercised, the file will scarcely be needed at all on the surface of such a filling, except for finishing round the borders, after which, with the stone, corrundum tape, and the proper polishers, a most perfect finish can be produced.

The chief point in this method is the protection that is afforded to the margin of the cavity. How often is it, that operations faultless in all other respects, ultimately fail because thin or feeble edges about them give way, but a little it may be, yet sufficient to give lodgment to foreign substance, and a beginning to decay; whilst had they been protected as above suggested, no such accident could have occurred.

In very many cases of filling proximal cavities of both posterior and anterior teeth, it is found difficult after the entire filling is introduced, to work over the entire surface of the filling, in such a manner as to give it a complete finish, without making more space between the teeth than is desirable, especially is this true, of that part of the filling, toward and at the cervical border. To overcome the difficulty of making a perfect finish, that so frequently occurs here, after a fourth to a third of the filling is introduced, which in all cases is upon the cervical wall, a complete finish of its proximal surface should be made, the entrance and approach to it for this purpose, is far more easy than after the filling is wholly introduced. T.

NITROUS OXYD RUMORS.

The reckless and indiscriminate use of nitrous oxyd is beginning to attract attention. This is not strange. The humbugged public is proverbially patient. Mystify anything, and people will swallow it, or choke in the attempt. Dockroot tea and molasses, prepared by some genuine "old Doctor Jacob," will be drunk with greediness, and "vegetable pills" made of calomel, will be taken with a relish. Nitrous oxyd, is "laughing gas," and has been administered by fools to fools, for the amusement of fools, for three quarters of a century. The public mind has been thus educated to regard the inhalation of nitrous oxyd as a good joke; and this accounts for the fact that people will take the gas from men too ignorant to be trusted with broken wheelbarrows—that they will let men take them so far toward "kingdom come," that they cease to know the kingdom here, who scarcely know a heart from a stomach—men who are aware of no difference in the function of respiration, and the action of a blacksmith's bellows, except that in breathing, the air comes out at the same hole it went in at.

All classes of the public have been at fault. Hundreds inhale the gas every day; and yet even physicians are indifferent. All the ordinary devices are used to induce people to resort to the gas. It is daily advertised at rates below the cost of preparation. Economy must be studied. How to make a little gas accomplish a great deal, is a practical question with such operators. To have the same gas breathed over and over, is an ordinary resort of such practitioners. More than once have we been consulted as to the best and *cheapest* way to purify the gas breathed by one patient, so that it would answer for a succeeding one. We have not reached complete sanctification yet, and our answer would not look well in print.

But there are symptoms of an awakening. A rumor of a death reaches us. Then of a patient becoming (or remaining) insane, and going to an asylum. Next of death from congestion of the brain, following the use of the gas. These rumors may be all untrue; but smoke is a sign of fire.

Now, nitrous oxyd, properly prepared, and *properly used*, is among the safest of all medicinal agents. But here comes the difficulty. At present, it is prepared by the person using it, who often is destitute of chemical knowledge. The preparation of it is difficult and complex. Few articles in the materia medica, are prepared with more difficulty, if so prepared that absolute purity is insured. The substance most frequently contaminating it is a deadly poison. When concentrated, it can not be breathed at all. When diluted, either with nitrous oxyd or atmospheric air, it may be breathed; and even when much diluted, its effects are serious, and usually grow worse for several days after taking the poison. And this poison, (nitric oxyd) is as likely to be prepared from pure, as from impure nitrate of ammonia.

In view of all these facts, it is strange that more accidents do not occur, even though many that take place are never reported. The more experienced members of our profession are usually busy, and extract but few teeth. They do not wish to be annoyed with anæsthetic practice. The consequence is that very much of the nitrous oxyd used is administered by the young and inexperienced. And it is a sad truth, that some of the experienced are none the better from their experience, but are simply confirmed in their unsound theories, and incorrect habits.

In all this, we have said nothing against our profession, as such. If each surgeon had to prepare his own chloroform, how many could do it? Yet, pure chloroform is prepared with less difficulty than pure nitrous oxyd.

Nor have we said a word against the legitimate use of nitrous oxyd. As a general rule, it ought to be used for all very severe and brief operations. Few agents more uniformly give the satisfaction we have a right to expect. But it will not do to give carbonic acid, or nitric oxyd along with it, and look for perfect success.

We hope there will soon be a proper public sentiment on the subject. Nothing short of this will correct present abuses. We may, sometime, suggest a "more excellent way." W.

TO THE POINT.

A paper published in the present number of the REGISTER, entitled "Causes Retarding Dental Progress," suggests the immense difficulty some writers experience in getting to the point, or rather, in taking their readers to it. The writer roams over a vast field of intelligence, picking up here and there a fact, and holding it a moment for illustration; but, after traversing the entire area, fails to show why any single fact or the whole array of facts, retard dental progress.

If the head were changed to any other, the body of the artiticle would fit quite as well. It is like the play of Hamlet with Hamlet left out. Indeed, it reminds us of the delighted father that named the baby before it was born, but after the event found that the name did not suit the sex.

The essayist, is however, not alone in this intellectual floundering; many excellent minds keep him company, and it is only because he is egregiously at fault in this respect, that his morsel is held upon the editorial fork for inspection. What would be thought of an operator whose plain and palpable duty it was to extract a tooth, yet, who instead of applying the forceps at once, should flourish around the patient with Dervish-like genuflections, and pinch his nose now and again with the instrument, touch the sensitive tooth a few times, just enough to drive the patient mad with pain, and finally dismiss him without performing the operation? This illustration may overstate the case of our essayist, but it is clear that there is too much sound in his index, and that he lays down his pen without taking up his subject.

To get at the point by the most direct route is the great need, and the true art of writing. All labored efforts are wearisome and unprofitable. To have something to say, and then to say it in the fewest forcible words is enough. It will give the most satisfaction in the end, and draw writer and reader into closer intimacy, and more enduring friendship. T.

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DEATH OF A NOTED SOUTHERN PHYSICIAN.—Dr. R. B. Wellford, a prominent physician, and for many years a Professor of Materia Medica in the Virginia Medical Colleges, died Dec. 29th, in Richmond, aged 74.

THE

DENTAL REGISTER.

VOL. XXV.] JUNE, 1871. [NO. 6.

Communications.

DENTAL EDUCATION.

Read before the Michigan State Dental Society.

Much has been written, and to the point too, on this subject. Much has been done in the education of dentists; so much that even at this early day in the history of our specialty in the art of cure, dentistry is almost recognized as a learned profession. But when we look at the masses of so-called dental practitioners, when we examine dental literature, and when we question ourselves as to our theoretical as well as practical attainments, we find there is very much yet to be accomplished in this direction. If dentistry were a mechanical trade, as too many consider it, even then a certain amount of scientific knowledge would be of much importance to the operator. But if it be a profession—a specialty of cure, or of the healing art, or of medicine, as you may see fit to call it; if the dentist be a curist, a conservator of the health of mankind, and a healer of the diseases of his neighbors, then how pre-eminently important is it that he should be acquainted with every science, that he should question every source of information and every avenue of knowledge that can assist him in the performance of his most responsible and humane duties.

In order to prepare ourselves for the proper consideration of this subject—Dental Education—let us spend a few moments in considering the question, what is dentistry?

In the earlier history of dentistry as a separate business, the man who, with strong arm and senseless brain, could mutilate his fellow by tearing out his teeth, and then supply the place of those teeth with some sort of an artificial substitute, was called a dentist. Then the treatment of some of the simpler diseases of the teeth was added to his occupation. Still the extraction of teeth and the manufacture of artificial dentures occupied his principal attention—so much so, that a student, or more properly an apprentice, taken into an office to learn dentistry, was considered sufficiently qualified to set up business on his own account, so soon as he could make artificial teeth, and mount them on a plate suitable to be worn by his patron, and perhaps, put fillings in a few simple cavities that would stay long enough for him to collect pay for the operations, and frequently he was not required to learn to make artificial teeth—for this branch of the business was soon, very wisely, adopted as a specialty by men of ability and untiring industry, who devoted their whole time and energies to this manufacture, supplying an article almost infinitely superior to any teeth that would have been produced in any other way. Thus the mounting and inserting of artificial teeth has been handed down from tutor to learner as a most important part of the business of the dentist. (One principal reason why this system has been adopted is, that it is pecuniarily advantageous, for the student can soon learn to earn something in the laboratory—while his pursuit of scientific knowledge adds nothing to his tutor's income.) If proof were required to substantiate these statements, it would only be necessary to refer to the transactions of dental societies. We would then find that not more than ten or fifteen years ago the time of the sessions of the dental societies then in existence, was largely, and in many cases principally occupied in the discussion of subjects pertaining to what was called "Mechanical Dentistry," and the dentist went home and talked artificial teeth so long, so much, and so persistently, frequently going around from house to house peddling his wares, that the public soon learned to consider a dentist a man skilled in "pulling teeth" and in making artificial substitutes, and to look upon dentistry as a mechanical trade, and the "sober second thought of the people," or public opinion, which is seldom wrong, was certainly not wrong in this case. For dentistry as then practiced, and as now carried on by many so-called dentists, is simply a mechanical trade—a manufacture.

But is this manufacture of artificial dentures, dentistry? Looking from our present advanced standpoint, I say no. To illustrate: The physician who devotes attention to the cure of cutaneous diseases, finding his best skill baffled by a severe case of scald head, may devote a part of his time to the manufacture of an artificial substitute for the natural capillaries he could not save. But, while he is at work at wig making, is he practicing medicine? The general surgeon may occupy a part of his time in making artificial limbs to supply the place of those he has been obliged to remove to save his patients lives. But is he practicing surgery while carving out wooden legs? or is the artificial limb maker a surgeon? Just so the dentist may spend a part of his time making artificial dentures, but while so engaged he is not practicing dentistry. He is engaged in a business outside of his profession. He is simply a manufacturer. And the sooner this manufacture is entirely divorced from dentistry, the better for the dentist, and the better for his patient.

Let the artificial teeth mounter follow the worthy example set him by the artificial teeth maker, and devote his whole time and attention to his branch of manufactures Don't give him the forceps, nor the turnkey, nor even the hammer and nail set, not anything with which he can extract teeth, any more than you would give the surgeon's knife and saw to the artificial limb maker. Give all operations on the natural organs of the oral cavity to the dentist, and when his skill fails to save the teeth, let *him* remove the diseased roots, and then turn the case over to the manufacturer of artificial dentures. Then the dentist, untrammeled by a mechanical trade as a part of his business, may take his proper position in the family of curists.

We are now prepared to answer the question—What is dentistry? I answer, as before intimated: Dentistry is a specialty of cure, taking cognizance of the diseases of the oral cavity. It includes both medicine and surgery. The dentist is a person who, being educated therefor, devotes his time and talents, his abilities and acquirements, and his skill, to the prevention and cure of the diseases of the organs of mastication. Dentistry is a most important specialty. For, if the very gateway to *nutrition* be obstructed, this process is impaired, and without healthy nutrition, the whole body must suffer; nor is dentistry any the less honorable or responsible for being called a specialty. Medicine and surgery are but specialties of the healing art. The intelligent and honorable medical practitioner will, when applied to for the cure of certain diseases, send his patient to the surgeon or the dentist. The general surgeon also frequently has occasion to send a patient to the physician or the dentist, and the medical man, who practices surgery as well, must sometimes call in the aid of the dentist. So the dentist may ask the counsel, or turn his patient over to the care of the physician or general surgeon, when the disease he is called upon to treat, is in part or wholly outside of his specialty. Mutual relationship and dependence must exist between the different members of the healing profession, and when dentists cease to make a mechanical trade their principal business, and learn and practice their profession as a healing art, then will that relationship be *cheerfully acknowledged*, and, in my opinion, not till then. So that, notwithstanding the physician has a larger range of diseases to treat than the dentist, and his practice is more general, it is not universal, and therefore is special. And if medical practice were subdivided into more specialties, it would be a blessing to suffering humanity, and medicine would become progressive as dentistry now is.

For life is too short, and the mind of man too weak to allow any one person to become thoroughly acquainted with the pathology and cure of all the diseases that afflict poor human nature. If one class of physicians would devote special attention to the study and cure of diseases of the lungs and thoracic viscera, and another to the bowels and genital organs, another to the brain and nervous system, another to the eye and ear, as an another class now does to the organs of mastication, the afflicted could apply to the doctor with much greater certainty of a speedy and permanent cure than he now does. And here I wish to say, by the way, that I consider the action of the American Medical Society, in prohibiting its members from practicing, or advertising as specialists, other than in the general terms of "physician and surgeon," as retrogressive. It is putting a block before the wheel of progress. It is fighting against the logic of events. And I hope to see the time when the live, progressive men of that society will demand its reconsideration.

But to return: We have seen that the dentist is a special physician and surgeon, and we are therefore forced to the necessary conclusion that he who is not possessed of the education and skill requisite to make him a dental physician and surgeon, is not a dentist, and should not be recognized as such by the public. What, then, should be the education of the coming dentist? Evidently, in general terms, such as to prepare him to practice medicine and surgery as a dental specialty. His education should be as thorough and complete as that of the general physician and surgeon. He need not, necessarily, be able to prescribe or operate for the cure of diseases outside of his specialty; but as the general principles and the fundamental sciences that underlie and form the superstructure of the science and art of healing are the same in all departments of cure, they should be equally well understood by all curists. Many of us can look back to the time when the facilities for acquiring a dental education were very poor. They consisted of the privilege of paying a practicing dentist a certain fee for the opportunity to work in his laboratory a few months or years, and occasionally witnessing a few of his operations. We might read his books, if he had any, but he had no time to examine us in our studies, or to assist us in overcoming the obstacles that beset our path, only so far as would enable us to become more profitable apprentices. But the spirit of progress which pervades all departments of science and art, has worked a great change in this respect; and, thanks to the demands of the public—thanks to associated effort—thanks to dental literature—thanks to dental colleges—the facilities now offered the student of dentistry for acquiring a thorough professional education are equal to those furnished by any other profession in this country, and the members of this society are sound on this question, for in 1866 we adopted the following resolution:

"That it be deemed derogatory to the best interests of the profession for any member to take students for a less time than three years, and under no circumstances unless he pledge himself to attend two terms in a dental college."

Also—

"*Resolved*, That any person entering the profession after this date shall not be eligible to membership in this association until he has graduated at some regular dental college."

So that, as far as we are concerned, the coming dentist must be an educated man. But what can we do for those poor deluded mortals, who, upon hearing our terms to pupils, in accordance with the above resolutions, leave our office doors and go to work for our neighbors, and in three months, more or less, hang out their shingle as dentists? Or rather what can we do to save the too credulous public from mutilation and injury by this class of ignoramuses? I can see but one feasible plan to accomplish this desirable object, and that is this: inasmuch as the manufacture of artificial dentures is the principal business of this class of operators, let us give them the whole of it, and let the public understand that the inserting of artificial teeth, except on the natural roots, is not dentistry, and that the artificial denture maker is not a dentist, and should not be employed to perform dental operations any more than the artificial limb maker should to perform operations in general surgery. And let him who proposes to practice dentistry prepare himself by making use of the best educational facilities offered to practice his profession with skill and fidelity to the weal of his patients; and I would go farther; I would by legal enactment prohibit any one from commencing the practice of any branch, system or specialty of medicine or surgery in this State unless he be a graduate of a legally authorized medical or dental college or university. And I would have those now practicing subjected to a reasonable examination and license, and I would prohibit every one from prescribing or administering a dose of medicine to or performing any surgical operation on a human being, for pay or reward, without such diploma or license. I would thus do all that education and the law can do to save the people of this State from the evils of charlatanry and malpractice; and further, to carry out these ideas, I would have the chair of "Mechanical Dentistry" taken out of the faculties of our dental colleges, drop the teachings of a mere mechanical business, the manufacture of artificial dentures from their curiculum, and devote the time thus gained to teaching how to save the natural organs, make dentistry a strictly conservative profession. Not that the mechanical business of manufacturing artificial dentures is not honorable, for it is just as honorable and just as necessary as any other business, and more lucrative than dentistry, but it does not belong with dentistry any more than wig making belongs to medicine. And now let us consider more particularly the dental educational wants of our own State, and propose a plan to supply them. We know there are a decade of good dental schools and university professorships in this country, probably amply sufficient to supply the demands on them. But there is a law in domestic economy that holds good in this case, viz: an increased supply of a good thing generally produces an increased demand. For a larger number of people become acquainted with it, and to know a really meritorious article is to want it. Thus there is a larger proportion of educated dentists in the immediate vicinity of dental colleges than at a great distance from them. Hence if we supply the means of a good and thorough dental education within the doors of our own honored university, the people will not be slow to appreciate and use those facilities; and they naturally look to the Michigan Dental Society as the source whence shall proceed those recommendations and improvements which shall guarantee to the afflicted relief from the various diseases that affect the organs of mastication. In obedience to this demand I would propose to have established a medical or *cure university* for the education of all persons desiring to learn any department, specialty or system of cure. I would admit all who possess the requisite character and preliminary acquirements, and teach them all together in one class or classes, in anatomy, histology, physiology, chemistry, botany, mineralogy, pathology, semeiology, and any other sciences or departments of knowledge that may be common to all curists. Then let each one select his specialty and go to that department and receive a thorough, theoretical and practical education in that specialty. Such an arrangement, faithfully carried out, would produce the best dental school in the world, as well as a first class medical university.

ADDRESS BEFORE THE GRADUATING CLASS, IN THE OHIO COLLEGE OF DENTAL SURGERY, March 1, 1871.

BY DR. JAS. TAYLOR, PRESIDENT OF BOARD OF TRUSTEES.

Gentlemen Graduates:

By examination of your diplomas you will find a very significant motto on the seal thereof. It is this: "Science Combats Disease." Disease is represented as an aggressive, insiduous foe of our race, ever at work to undermine our health and lay us prostrate at her feet. She comes to us hidden in the food we eat, in the water we drink, and the invisible air we breathe, often comes laden with her pestilential influence. Our recreations, our amusements and pleasures, all must be kept within proper bounds, or this enemy is upon us. Even too much sleep, the great restorer of exhausted nature, may open the door for this enemy to step in.

Science is represented as an ever watchful guardian—fortifying us at this and that point to resist attack. Showing when and how to avoid her approach, and when the enemy is upon us placing means and weapons in our hands by which to drive off disease. I take it, there is a continuous battle going on between medical science and disease, and although disease, from the nature of things, does ultimately triumph, yet the victory is often deferred and pain and suffering immensely mitigated. If there is therefore a truly noble pursuit, it is that which has for its object and aim the prolongation of life. It is noble because it teaches us what is man in all his mysterious organization, the most noble of God's creation. Science explains the laws and functions of life. Its study not only enlarges our views of man, but reveals much of that benificent wisdom which brought him into being.

We take simply dentition from its earliest developmental process unto its consummation, and what a study it affords! the laws which govern accretion; the elements necessary for perfect dental development; the power and office of the secreting vessels; the wonder that so hard a body should be elaborated from the circulating fluid. The wonderfully mysterious apparatus by which the deciduous organs are destroyed, and the wisdom of their destruction and replacement. The whole process, from germ life to perfection, should forever silence the skeptic's argument of *chance.*

In the prosecution of your studies we have no doubt you have been led to admire the laborious and persistent research which has so fully demonstrated these facts of our science, and as they are the foundation principles of dental physiology, we would urge upon you their careful consideration.

The first duty of the physician is to prevent disease. These laws of our economy point with unerring certainty to the only means of securing perfect development of our dental organs. An imperfect organization can be expected to resist but feebly the varied causes producing disease.

Help, then, gentlemen, to turn back our artificial mode of living to that natural, normal condition when decay of the teeth was as rare as it is now common. Without this change all our skill and care can only retard and partially preserve. It is a sad reflection that so many Americans need the services of the dentist, and we may add, it is a proud reflection that so much good is accomplished through their instrumentality. Yes, gentlemen, "Science does Combat Disease," and our profession is making a proud record for herself. We bid you welcome to her ranks, and as your opportunities have been good and you have shown commendable zeal in availing yourselves of them, we shall look to you with confidence that her march shall be onward; that future progress shall be in correspondence with the past, and your names be all enshrined in the hearts of the profession.

A few of us can look back professionally to the time when there was not a dental college in the land, and by this we mean that perhaps not in the world. The old world as well as the new had not as yet recognized dentistry as a science, even as an honorable art it was struggling for recognition. A few whose names will always stand as stars in the dental galaxy were silently but faithfully making their mark on this continent, but still a French name was almost only relied upon for a recommendation. This was then the diploma, and brought with it succedaneum and a train of French evils; but now what a change! Paris and many of the capitals of Europe look to America for dental skill, and your diplomas are a passport thoughout the civilized world. They will give you introduction to the medical fraternity wherever medical science is recognized as a liberal profession. They are evidence of an examination here, which courtesy affirms is sufficient even where the most strict laws are passed to guard every specialty of medical science. They are worthy, then, of your honor. Strive to make those of your Alma Mater the par excellence of all the honored.

But, gentlemen, the seal on your diplomas reveals something more than the motto to which we have referred. There is the sun shedding its refulgent light on an open book, symbolic, if you please, of the immense store of knowledge which science offers to the student. The book is open and God's pure light shines upon it, that all may read and understand. The book is not a shut and sealed one, hid away in the dark. It is a book of "knowledge of good." Yes, it is a good book, and every fact or principle of science it contains reveals more and more the infinite wisdom of the Author of all true science.

We do not wish to be understood as meaning that all books contain nothing but what is good, for such is not the case. Yet all the facts of science will be found so far as yet discovered in books, and to them you must go for knowledge. We must learn to sift the good from the bad; to take facts as demonstrated, and not theories for our guide.

Books should become now more than ever your constant companions. You select the best authors, read them with care, and you will soon find that your preparatory studies have but prepared you for the full force and proper appreciation of what you read. This is really your commencement, but commencement of what? It is the commencement of your professional career, and we had almost said the commencement of your studies, and why should it not be? If you live for years to come, it should be but the commencement of your knowledge. We are glad to learn that you have made laudable proficiency; a solid foundation for future attainment and usefulness. Continued study will alone secure this.

We would not have you confine your reading to that which relates directly to the profession. You should take in all science, morals and philosophy, and let me here say that the best of all books on morals is the Bible, which this institution has always recognized as the book of books, and all our graduates have been presented with a copy. Keep yourselves thoroughly posted in your profession. But you will find that to diversify your reading your mind is relieved, enlarged, expanded, so that your regular studies will be attended with more zest. Recollect that our periodical literature is always rather in advance of our standard works. New dental books are and must necessarily be very much made up from selections and compilations from our periodicals. They appear to be only necessary, as new and valuable information is thus accumulated, requiring the gathering up of this rich material and condensing and systematizing it for convenient use.

No dental or medical office can afford to dispense with the new living thought and experience which comes fresh and sparkling every month or quarter from the press.

These are the channels, gentlemen, through which we hope to see results of your experience and observations, not alone of books, but the working out of your own thoughts? Think for yourselves and make books and observation the fuel for your thoughts.

"Science Combats Disease." Read it not that ignorance combats disease; disease may be relieved ignorantly; accidents happen occasionally. Ignorance vaunts itself; it is puffed up; it is full of pride and high sounding words. If you doubt this read the advertising page of any daily paper. This is all not even false science; there is no science about it; it is empiricism. True science comes to the student, to the humble seeker after truth, as an analyzer of facts, an investigator of principles, a friend of every devotee of knowledge.

In conclusion, gentlemen, let me say that in some way or other she will always be found of those who seek her.

MAY FILLINGS BE MADE TOO DENSE?

BY W. E. MAGILL.

In the March number of "the Dental Register," is an article entitled "Splitting Teeth with the Mallet." It seems now opportune to earnestly call the attention of intelligent members of our profession, to the facts narrated in that article, as they are but samples of an interesting class which is rapidly increasing under our modern modes of operating.

Nearly a year since, I asked the attention of our Lake Erie Association, to the fact that teeth filled with gold were sometimes broken asunder, or burst, or portions of the enamel thrown off, as if from internal force, and under such circumstances as to justify the conclusion that expansion of the metal produced the fracture. The observation of other members of the association coincided with my own. The inference drawn is this: that the use of adhesive gold enables us to fill a class of teeth formerly filled with amalgam, or allowed to remain unfilled; that the mallet packs into large cavities and frail teeth, much more closely and densely than can be, or usually is done, by hand pressure; that when the quantity of metal equals or exceeds the surrounding quantity of tooth structure, its greater ability to expand from heat, (or greater rapidity, which would produce the same effect,) results in breaking asunder the enclosing cylinder.

Reasons why this does not more frequently occur are found in the *shape* of *cavities.* If they take the form of a cone, with the base on the grinding surface, or if they flare from within outwards, where the greater body of metal is located, the expansion may be in such direction, or so governed, as not to do immediate or noticeable harm, but possibly showing itself in the form of displacement, at first slight, and charged to other causes. Again, imperfect packing of the gold, either at sides or center, may avert the danger, and a little difficulty in reaching certain points with the plugger, will thus prove the salvation of the tooth.

If, as we suppose, the *expansive* force of metal approximates its *contractile* power, it is immense. We know that if the smith does not make sufficient allowance for contraction, when the heated tire cools it will warp the felloes and spring the spokes of his wheel. We know that the contractile power of heated metal, is used to draw together the sides of heavy buildings, when dangerous fissures occur.

2d. Fillings may be so dense and unyielding, when inserted upon the grinding surface, or brought from the approximal to the grinding surface, in supplying the place of lost structure, in molars and bicuspids, that occlusion of the jaws will ultimately burst the tooth laterally, driving off one or both cusps. It is true that this may be prevented by persevering cutting until articulation is perfect; but every patient does not have a nice sense of touch, and the operator's eye can not always detect a line's difference in articulation. I sometimes approach the desired state by drawing slips of tissue paper between the teeth, continuing to cut the filling until those teeth which should touch, will hold the paper and prevent withdrawal.

Adhesive gold and a heavy mallet together, produce a dense inelastic plug. Such a plug, probably, must impinge with more force upon the tooth-wall, to make a tight joint, than a more elastic material. Perhaps we ought to make this question of elasticity a study. Under the old mode of filling with soft foil and hand pressure, we had usually an elastic filling, or at least, one less rigid and inelastic than those now made with adhesive gold; and yet it has been a common experience to find such fillings in the teeth, apparently perfect, at the end of ten or twelve years. Sometimes the more dense fillings, which we considered our best, if not thoroughly anchored by undercuts, would be found with a projected edge, and we felt satisfied that the motive power was in the metal, and there was no counter force to return it. I have seen fillings so soft that you could take them out with a pointed piece of wood, retained in the teeth for years, and when removing them have been surprised by the good condition of the tooth surface beneath.

These questions might be profitably discussed. On approximal or buccal surfaces, where no direct force is to be resisted, what degree of density is necessary to make a tight joint and protect against decay? This being the main object, is it in such cases of any advantage or disadvantage to go beyond such degree of density, if ascertained?

In view of the facts which have called out this discussion, would it not be well to fill frail teeth or very large cavities, partly with osteoplastic, or other material subject to less expansion and contraction than metal?

I confess to considerable interest in this subject, and to a tendency to be prolix, partly due to haste; but if able pens are hereby induced to do *justice* to the theme, mine has done its duty.

PHOSPHATE OF LIME.

BY J. M. PORTER, D. D. S.

It would seem from the many articles published in dental journals advocating the use of phosphate of lime, in all cases where that constituent seems to be deficient in quantity in the teeth, that many dentists regard this as the only successful treatment in all such cases. And believing that many are laboring without securing the desired results in using this remedy, we will endeavor to give a reason for their want of success.

The observing dentist, who never makes an operation in the mouth without closely examining the cause of decay, will many times see that constitutional defects are having as much influence in producing decay, as such local influences that are some times present.

It is well known that loss and reproduction is constantly going on in the body, that whether formation or destructive assimilation predominates, will depend upon general systemic conditions, and *not* upon the amount of any *single element* taken as food. Scientific investigations prove that a given amount of carbon, nitrogen and hydrogen taken as food into the organism will not produce the same amount of physical force in different persons. We may go further and presume that the same amount of food is equally digested in both cases, and absorbed into the circulation and carried into the tissues, and even then we know that the same benefits are not derived in all cases. And further, it is conceded that any kind of nutriment entering the tissues is not proof that it *all* enters the cells where the greatest amount of oxidation takes place. If, then, a portion of our daily food enters the portals of the tissues without entering the inner chambers of the tissues, but passes out again unchanged by a reversal of the forces that carried it in, thereby becoming dead instead of living matter, will giving phosphate of lime have any beneficial influence, supposing this element seems to be deficient in the teeth? Can you relieve such a condition by giving a single element of food, when nature refuses to partake of the food already digested? On the other hand we will suppose that excessive waste is being carried on to such an extent that any part of the body suffers as a result. Will simply giving a single article of food have any influence in checking this excessive waste? If so, upon what principle does it operate?

From observation and experiment, we have found that proper food (that is, such food as contains the elements which seem to be deficient in quantity), if used judiciously, will remedy a defect of this kind, *if any change of diet can.* If nature refuses to appropriate *food containing such elements as are deficient*, how can we expect better results when we give a single element of food?

Every dentist who is observing will see a marked difference in the structure of teeth, as he operates in the same mouth for two or three successive years, when the patient has been living on the same diet, and in the same climate, and seemingly in perfect health all the time, and when frequent tests convince the dentist that no local influences are present that could produce these changes.

We can only account for these changes by presuming that at one time nature refused or failed to appropriate the food digested, for we surely can not attribute it to any change of diet when there was no such change.

In conclusion we claim that it is impossible to modify general systemic conditions by giving as food a single element, which seems to be deficient in some parts of the body. We can not force nature to appropriate food by such treatment, neither can we check an excessive waste. This thing of treating symptoms is in our opinion very much like reporting personal experiences at dental meetings, neither having the desired influence. Register X

OFFICE NOTES.

BY W. H. SHADOAN, D. D. S.

(Continued from page 105.)

To attach sectional block teeth to silver plate, use Watt & Williams' metal. Grind and arrange the teeth the same as for rubber. Invest in Watt's moulding flask, the same as for their process. After the flask is separated, remove the plate and polish the surface that the attachments are intended to take hold of, coat it with jewelers' liquid solder, or deliquessed chloride of zinc, and dip the plate into a portion of the melted metal, and return to its place and cast same as where the whole plate is to be of that material. On removing the case from the investment, the teeth will be found firmly united to the plate. Care should be taken that no more fullness be had to the wax than is absolutely necessary, as there will be a waste of metal as well as labor. Any one at all acquainted with the working of this metal, knows that it does not work down as easily as rubber. Teeth may be attached to aluminum in the same way, by making a sufficient number of holes through the plate under the pins in the teeth. These holes are to be about a line in diameter and countersunk on the back side, and in addition to the holes, the plate should be roughened with a graver to add to the strength of the attachment. Finish same as for rubber work.

The surface of the aluminum may be more highly finished with a warm burnisher, using parafine as a lubricator. This can be removed with chloroform, and the process repeated until a satisfactory finish is obtained. Where the teeth are to be brought close to the gum, owing to a prominence to the alveolar border, the plate need not extend beyond the shoulder of the teeth. Slit the plate a little way, about a sixteenth to an eighth of an inch apart, and with the pliers twist these, reversing the turn so as to give additional security to the hold on the aluminum. A little experience in this will be quite sufficient.

(To be continued.)

DEMONSTRATIONS *vs.* LECTURES.

BY C. M. WRIGHT, D. D. S.

Read before the Mad River Dental Society, May 9, 1871.

I do not know that I can put down in readable form, the thoughts that have occupied me for some time on a subject connected with dental education. As I can not be present at this meeting of the Mad River Valley Dental Society in person, I will make the effort to send a thought as a proxy. I want to say a word in favor of demonstrations, of clinics, of the work of the hands, of visible methods of giving instruction in a practical and mechanical or artistic art, and should like to show the superiority of this method of instruction over the old system of lectures pursued in most of our colleges and universities, and especially in our professional schools. The lecture system has been so long pursued, that veneration for an established custom may prejudice our minds in its favor without much thought; yet while it has some advantages, and while thousands of learned men have used this method of gaining and of giving instruction, it seems to me that too much stress is laid upon the importance of this custom, and too little attention is given to the more important, and more successful, and more rational method of giving instruction in practical studies. If we desire to teach metaphysics, or a system of religion or mental philosophy; if we want to teach history of men, science or art, the lecture system as pursued in the German universities, is probably a good way. It brings the student into direct contact with the living thoughts of a teacher, knowledge and renown; it helps, perhaps, better than reading, to make thought burn and tingle in his mind; it stimulates the student and fixes his attention; it calls up in his own mind connective thoughts, and helps him think. This will apply, of course, to lectures on any subject, theoretic or practical—but suppose the subject is one that deals only with an art—

a manual art. Suppose we wish to teach our student surgery—is it the best way? A man might listen attentively to lectures through twenty courses, on surgery, and yet faint at the sight of the knife and the first drop of blood. He might be versed in the nomenclature of anatomy, and yet have no knowledge of the track of a single vein or artery. Knowledge of an art is not a mass of principles stored in the memory. Look at the crowds of young men that leave our medical colleges every winter with diplomas in their hands. Would you trust one of them with the life of a favorite child? He may know more names of diseases, more histories of symptoms, more opinions of medical writers than your old family physician. He, (the young graduate) has come home, crammed with medical lore, and filled fresh from the fount with lectures—but the old doctor knows the tongue, the eye, the pulse. He *knows* quinia and blue mass. His knowledge is a knowledge of facts—of experience. He has forgotten his lectures entirely, but he remembers his *cases.* In dentistry, how should we teach? I will not speak of anatomy, physiology, etc., but only of mechanical dentistry. Mechanical dentistry is an art. The *science* is comprised in the *art.* How can we best teach this art? By lectures? The answer to these questions, it seems to me is plain, if we think for a minute what we want our students to know, and what they want to know when they are standing by the side of their first patient. Shall one of our students, with a diploma from a dental college, stand by his patient, and remember what Professor A or B said about filling approximal cavities, or about extracting, and inserting a partial denture, and with untrained hands and eyes, and muscles and judgment, attempt to put into practice his memories? By no means. His efforts would make any of us blush for our colleges. Then why lecture him for five months, quiz his memory, and give him a diploma? I can not put this subject in the strong light that I would like to. I can not express it as decidedly as I feel about it. It would not be polite. But it seems to me that the lecture system in all practical or exact arts or sciences is carried altogether too far. If I want to learn geology, I don't want to hear Professor Rock talking about strata, substrata, or anything of the sort. I want to follow him out into the fields, and with hammer and blasting powder, work and see, and think and feel geology. If I want to learn botany, or astronomy, or painting, or architecture, I want to *handle* and *see*, that I may know these things. Is this not true in mechanical and operative dentistry? In books and lectures we probably get the best thoughts of those who make books or deliver lectures—but if we want to teach farming, or navigation, or house building, or picture painting, we must take our students with us, and make them put their hands to the plow and the wheel, the saw and the brush, and demonstrate our principles in our practice.

Dentistry should be taught in the same way. If we must have lectures in our dental colleges to keep up the custom, and to sustain a false notion of the dignity of a college, let them be few, and the demonstrations many. How often has it been illustrated, that a five minutes talk of explanation and demonstration by a sick bed, has given the student more and better ideas than a months' close attention to lectures. How often is it true that at our dental associations, a five minutes peep at a great operator in a clinic, will teach us more of filling teeth than all our books and all our talks? If what I have written is true, when you send your student to a dental college, select the one that teaches practical dentistry in a practical way, and if your own conscience don't applaud you, your student in after days will.

OXYCHLORIDE OF ZINC TREATMENT OF DENTAL PULPS.

BY H. A. SMITH, D. D. S.

Recognizing, as nearly all do, that the dental pulp is the proper organ through which the teeth receive their nourishment, and that therefore there can be no real safety to the tooth without the presence of the pulp in its normal condition, it is our duty as conscientious practitioners of dentistry, to conserve this organ whenever in our power.

That the dental pulp can, under favorable circumstances, be kept so as to perform its proper physiological functions after exposure from caries or other cause, is now generally admitted.

The methods of treatment recommended to accomplish this end, have been as numerous as some of them were novel, from the early impracticable method of bridging or arching over the pulp with gold foil. The innumerable nonconducting materials suggested from time to time, on down to the surgical method of gouging out a portion of the pulp, each in turn have been tried and found lacking. But dental science advances, and it remains to us who live in these latter days, to avail ourselves of the modern discovery of a *panacea* for all the ills of exposed or diseased dental pulps.

Strange as the claims made for some of the older methods may appear to us now, *none* perhaps have had a degree of success claimed in their use at all to be compared to the oxychloride of zinc treatment.

A collection indeed, of the discussions and papers published relating to treating and capping exposed dental pulps during the last ten years, would present a most curious array of confident statements, upon the least positive evidence, as to the statistics or facts relating to the subject that could be found in any department of modern science.

If we may judge from the statements of the few who have made public the results of treatment with the oxychloride, the same idiocyncrasy to claim success without giving the data upon which to base them, is still to be observed. It will require years of carefully recorded experience to establish what is already claimed for this method.

Oxychloride of zinc has most of the requisite qualities, that in our judgment, are desirable in a material used for a capping for exposed pulps. It is sufficiently indestructible when protected from the secretions of the mouth. Its conductivity is low, thus preventing disturbance to the pulp by thermal changes. It is dense and hard enough to resist the necessary pressure to complete the operation of filling. It has the requisite plasticity to be applied directly upon the denuded pulp, forming a close fitting cap without crowding upon it.

One other quality which we have ever regarded as indispensable—it lacks, viz: that the material should have no chemical or irritant effects when in contact with the pulp tissue.

Oxychloride of zinc is an escharotic and an irritant. It has been asserted, that it is this chemical action upon the pulp tissue which renders it specially applicable for this purpose.

To this position we must take exceptions. A pulp in its normal state of health, if an exposed pulp may be so regarded, should be let alone as nearly as possible. The irritant effect of oxychloride of zinc causes a departure from this healthy state, which would render success much less certain than if the capping was entirely passive.

A favorite method of treatment has been to cauterize the point of exposure with creosote before applying the capping, thus preventing the full effects of the escharotic action, and destroying in part this property which it is thought recommends the oxychloride.

If the pulp is diseased from long exposure or the presence of irritating matter in contact with it, and treatment is desirable, then the specific action of either the creosote or chloride of zinc may be indicated, but they should be applied as therapeutic agents. The remedy used is more fully under our control when applied for a definite object, than when combined with an agent with which we hope to effect a double purpose.

The application of an agent that would not prove an irritant to the pulp, when it is in a proper condition to be covered over, to prevent the pain caused by the oxychloride is very desirable, and has been eagerly sought after. The creosote partially effects this, but it is also an irritant, and unless the case indicates it, should not be applied. It alters the structure of the pulp tissue, forming a coagulum or pellicle which must be absorbed, or remain an irritant or foreign body in contact with it, which would greatly endanger the vitality of the pulp.

It would appear then, that those of the profession who recommend the oxychloride of zinc as a capping, for the reason of its escharotic action upon the pulp, depart from their own theory, when they advise that an agent be first applied to counteract the legitimate effects of the chloride.

What we need is a substance, a compound having all the properties we have enumerated, that shall be received in contact with the pulp tissue, without producing irritation, save that which may follow from contact with any foreign body, no matter what its properties are.

REMARKABLE RECOVERY OF THE VOICE.

A singular and very remarkable recovery of the voice is recorded by W. C. Stanley, D. D. S., of Dublin, Indiana, who under date of May 9th, 1871, says: "Miss B. when quite a girl, went to a camp meeting, where becoming excited by the exercises of the occasion, used her voice to excess, and lapsed into a cataleptic state, in which she remained for a considerable length of time. When finally aroused she found her voice and her power of speech completely gone, and for over twenty years she was unable to make an articulate sound. Necessity compelled her to learn to convey her ideas with her fingers to those who understood the deaf and dumb method. Ordinarily she used a slate, and as she could hear perfectly, it was only necessary for her to write.

While in this condition she was under my care two or three times as a patient, and my acquaintance extends over a period of twelve years. About five years ago, a druggist in a neighboring town suggested to her the feasibility of recovering her voice by excessive stimulation with whisky. She consented to make the trial, and became intoxicated to complete stupor. When the effect passed away, Miss B. found her voice entirely restored, and her power of speech unimpaired. Her joy and the joy of her friends can readily be imagined.

There does not seem to be that force and volume in her voice naturally expected from such a person, yet in clearness and precision of tone it is faultless, while her enunciation is so accurate that it is pleasant to hear her converse."

Dr. W. C. Stanley gives the following method of getting creosote, carbolic acid, etc., into the sack of a tooth when there is an opening through the foramen: Fill the root loosely with cotton, saturated with the substance which it is desired to use, wipe out the cavity of decay, and fill with softened gutta percha, leaving it project somewhat from the cavity. Take a large flat instrument and press slowly upon the gutta percha, which will be pressed into the root, and force the fluid through the foramen. By this method I have found it much easier to control the fluid, and prevent its getting upon the soft parts, when there is an opening through the gum, than by any other I have tried, as the pressure can be stopped the instant the fluid makes its appearance at the opening.

Proceedings of Societies.

MINUTES OF THE WABASH VALLEY DENTAL ASSOCIATION.

The Wabash Valley Dental Association convened for its seventh annual session in the rooms of the Y. M. C. A., at Lafayette, Ind., on Tuesday, March 21, 1871. The President, John L. Scott, in the chair. W. H. Pifer, Secretary.

The meeting was called to order at 10 o'clock, A. M., and upon the calling of the roll the following members answered to their names:

John L. Scott, Defiance, Ohio; A. B. Cunningham, Attica; A. M. Moore, Lafayette; Isaac Knapp, Fort Wayne; J. S. Snoddy, Lafayette; W. F. Lewis, Delphi; W. H. Pifer, Lafayette; Lewis Jourdan, Delphi; E. V. Burt, Lafayette; J. W. Fahnestock, Lafayette; Seneca B. Brown, Fort Wayne.

The minutes of the last meeting were read and approved.

The treasurer, J. S. Snoddy, having made a report, on motion action was deferred till afternoon session.

The Board of Censors being absent, the chair appointed A. B. Cunningham, A. M. Moore and Isaac Knapp in their stead.

The Board recommended Dr. E. Snider, of Fort Wayne, for membership. The rules being suspended, he was declared a member of the association.

The Treasurer being absent, Prof. A. M. Moore was appointed Treasurer *pro tem.*

Dr. E. V. Burt moved that Prof. Chase, of St. Louis, Dr. C. Palmer, of Warren, Ohio, Dr. W. Taft, of Cincinnati, and Dr. P. G. C. Hunt, of Indianapolis, be elected honorary members. Carried.

On motion the association proceeded to elect officers for the ensuing year, which resulted as follows:

President—A. B. Cunningham, Attica.

1st Vice President—E. Snider, Ft. Wayne.

2d Vice President—W. F. Lewis, Delphi.

Secretary—Seneca B. Brown, Fort Wayne.

Treasurer—A. M. Moore, Lafayette.

Dr. Burt moved to adjourn till 2 P. M.

Dr. Moore moved to dispense with the motion to adjourn, and vote for S. P. Thompson for membership. Adopted.

The rules being suspended, Dr. Thompson was declared a member.

Adjourned to meet at 2 o'clock P. M.

AFTERNOON SESSION.

The association met at 2 o'clock, pursuant to adjournment, Dr. Cunningham, the newly elected President, in the chair.

Prof. Moore presented the name of W. P. Crowell, who was unanimously elected a member.

"Filling teeth with heavy and light mallet," the first subject for discussion, was now declared in order.

Prof. Moore made some remarks in favor of the heavy mallet.

Prof. Chase gave his experience with mallets of different weights, and concluded a seven or eight ounce mallet preferable.

Dr. Knapp has used all kinds, and settled upon a heavy lead one.

Dr. Hunt next spoke in favor of the heavy mallet.

Dr. Snyder uses exclusively the elastic wooden mallet.

Drs. Scott, Palmer, Burt and others, all advocated heavy mallets.

On motion the subject was passed, and the second subject, "Materials for filling teeth," taken up.

Dr. Knapp uses Watts' foil, Nos. 3, 4, 10, 20, 30 and 60. Makes the main part of the filling with No. 4.

Dr. Hunt uses oxychloride of zinc, cement, amalgam and Johnston's Nos. 4 and 60, soft foil, principally No. 60.

Dr. Palmer uses gold, tin, Hill's stopping and oxychloride. *Nothing else.* Tin for children's teeth.

Prof. Chase advocates tin in place of amalgam in all approximal cavities. Thinks the amalgam of the present day more objectionable than the old fashioned way of preparing it. Uses gold for most cases, No. 4 to 6, adhesive, 4 to 8 soft foil (Abbey's). For building up, 20 to 60.

Prof. Moore advocates gold, and thinks cement plombe far superior to oxychloride. Has seen fillings after six months use firm and in good condition.

On motion the subject was here closed, and the third subject, "The expediency of building up cutting surfaces of incisors when worn away by mastication," was taken up.

Prof. Moore stated a case contemplated in the question, and as he had adopted the practice, wished to ask the views of other members.

Dr. Hunt gave a case of interesting and elaborate character, that resulted very satisfactorily to the patient and himself.

On motion adjourned to meet at half past 7 o'clock, P. M.

EVENING SESSION.

The association was called to order at 7½ o'clock by the president.

Minutes of afternoon session read and approved.

Dr. Knapp spoke upon the subject in order, and gave an account of successful practice.

Prof. Chase spoke in approving terms of the practice.

Dr. Palmer also gave interesting accounts of cases in his practice, and continued at length with a full description of the *modus operandi,* kinds of foil, etc.

On motion of Prof. Moore the subject under discussion was dispensed with.

CLINICS.

Prof. Moore moved that to-morrow morning be devoted to clinical operations, and Dr. Palmer appointed to operate. Carried.

On motion adjourned to meet at 8 o'clock on Wednesday morning at the dental apartments of Drs. Moore and Burt, for the purpose of holding the clinic.

SECOND DAY—MORNING SESSION.

Association met according to adjournment at 8 o'clock, A. M., in the rooms of Drs. Moore and Burt. Dr. Palmer being unable to obtain a case suitable to demonstrate his method of filling. Prof. Chase occupied the entire morning in performing a very difficult and protracted operation in filling, much to the interest and profit of all who witnessed.

AFTERNOON SESSION.

Association met at the regular place at 2 o'clock, P. M.. President Cunningham in the chair.

On motion the reading of the minutes was dispensed with.

On motion the regular order of business was dispensed with, and Dr. Palmer invited to occupy the afternoon in exhibiting and explaining his charts, casts and diagrams. With these many of the profession are acquainted. To those who have never seen them, a poor idea can be given by a description. The lessons learned from him are what none can afford to lose. He stands at the head as a reformer in dental practice. Taking *nature* for his model, all the wasted lines are by his skill remoulded into form. The association during the entire afternoon gave the closest attention to Dr. Palmer's illustrations and remarks, feeling that they had at this meeting received the greatest good that could possibly be bestowed upon them. After some formal business attending the close of the session, the association, on motion of Prof. A. M. Moore, adjourned to meet at Ft. Wayne, on the third Tuesday in March, in 1872.

At the solicitation of Prof. Moore, Dr. Palmer remained one day after the adjournment. When at the office of Drs. Moore and Burt, in the presence of a number who remained to witness, he demonstrated by operations on the natural teeth, his *perfect system* of filling teeth.

SENECA B. BROWN, *Secretary.*

Selections.

ADDRESS BEFORE THE ALUMNI ASSOCIATION.

BY JAMES TRUMAN, D. D. S.

"What contributes most to professional power?" It is a question that each and all must analyze, and, if possible, endeavor to reach a solution. We all profess, or should profess to believe that knowledge is power, or, in other terms, that he wields the greatest force in the world whose education has been the most perfect. While this is true, and almost axiomatic in its truthfulness, the modes to be adopted, the means to subserve the great end in view, are by no means so clearly defined. In no branch of human training have we cleared a path entirely free from difficulties, and we can not claim an exception in favor of our own profession. Young in years, still encumbered with crude ideas, inseparable from this period of experience, we have largely developed in our professional brain and overweening self-consciousness that we have accomplished very much for our boyish age. But the boy is growing into the man. As the garments are being changed for adult life, there comes the knowledge that the limit of our information is circumscribed to a degree that borders on the ridiculous. Time is fast verging into the half century since the profession of dentistry may be said to have been born. It had a life long anterior to this, but it was crude, misshapen, simple in its aims and narrow in its cultivation. Slowly the child has matured, yet rapidly, when the difficulties that have surrounded its growth are taken into consideration. The stepping stones in its history are plainly marked and can be read by all. We see the progress, but we can not realize the difficulties that have environed each step; the hours of anxiety, of hard labor, of deep study, that have formed out of chaos the beautiful structure we now behold.

* * *

When I recall the early days of dental education and compare them with those of the present, I feel that progress has truly marked our career. When I remember the names of a Harris, a Wildman, an Arthur, a Maynard, in the great work of regeneration, the question, "What contributes most to professional power?" is answered, and it might be given in one word, *education*. These men, as well as a host of others, have builded that others might reap, have given of their intellectual force that you and I are enabled to perform works worthy of our generation. But, if we profit not by their example, we will have no future worth the record.

I do not belong to that class of mind that stands ever ready to ignore the past and the benefits derived from it; but it is the ever living present we now have to deal with, and the needs of that near future that will hold us accountable if we fail to do the work of the hour. Are we, then, performing our whole duty? This each must answer for himself, but to my mind there are many things yet to be done, and it is the purpose of this brief address to point out some of these.

When medical and dental colleges were organized in this country, the importance of a thorough preliminary education was felt and considered; but owing to the peculiar condition of the country, this could never be made an absolute requirement before entering a school. The country was new, it required professional men in large numbers to meet the wants of the different communities, and it was therefore left to the individual to judge of his own fitness to commence the career he had chosen. The result has been in many respects injurious. We see it painfully manifest in the medical profession, where the dead weight of ignorance cripples the energies of the more enlightened, and makes American medicine a by-word and reproach in Europe. In dentistry the same results in degree have been reached. In the earlier years the strong, natural ingenuity and practical ability of our countrymen, enabled them to take a leading position. They accomplished miracles, and were and are the wonder of the world in this department; and because they have done this many are deceived into the belief that any further advance in education is of very little if any value. Here lies our great peril. Self-complacency has destroyed individuals, has sapped the life of nations, and ended in their total destruction. The result can not be different with our profession. It is only by an humble appreciation of our great needs, of our fearful short-comings, that we can hope still further to progress and keep in the vanguard of the advancing hosts.

We have passed through the early period of our professional life. The cultivation of the mechanical details absorbed, and properly so, the minds of the best thinkers and workers in our midst. This was the great need. Without this, theory was valueless; indeed, without it the profession itself ran in danger of becoming a monster of malpractice. But we have given our years of best thought in this direction. We had almost perfected the mechanical branch when vulcanite, with its quacks, came as an avalanche upon us, threatening to overwhelm all that was good in this direction, and to destroy the labors of half a century. How much injury this has accomplished is known to you all, and I need not dilate upon it. The operative branch has had its trials, its days of amalgams and plastic fillings, but the good sense and true faith of the many have so far stood as a wall of adamant against the insiduous approaches of these fell destroyers. Over all these, operative dentistry has advanced with rapid strides, until it would seem that there can be but little left to wish for. We have learned to build our foundations well, and are no longer in doubt in regard to the result of the majority of our operations. Having, therefore, carried the two main branches of our profession to a point at which they can be left to that gradual growth and improvement that years will bring, are we not prepared for greater efforts in other departments?

The distinct propositions I would then submit to your consideration are these:

1st. Is a preliminary examination necessary before entering the study of dentistry?

2d. Should the time of study be lengthened?

3d. Is it necessary to enlarge the knowledge of collateral branches?

4th. Are compulsory laws, requiring a grade of ability, expedient?

I am fully aware of the difficulties that meet me at the outset in the consideration of the first query. Some of these have been already adverted to; but in the consideration of a question, the difficulties to be encountered are not to be taken into account. Is the path to be pursued a proper one? This decided upon, there is but one course to pursue, and that an unswerving devotion to its attainment. It must be apparent to every reflecting observer, that no structure of any value can be reared upon an insecure foundation. As this is true in architecture, so it is equally true in mental culture. The man who begins to study at the top of the ladder finds himself, instead of advancing, to be ever, crab-like, crawling backward in the laborious effort to find the first round. That the labor is a discouraging one, needs no assertion to those who have tried it. Now, is not this the exact position of a large proportion of medical and dental students to-day, and especially of dental? This is not said with a view to discourage any laudable ambition. Far be it from me to do this. I would rather encourage every earnest effort to advance. While the profession was in its pupilage, this was not wholly detrimental; but now it is working a very great injury, indeed, is the drag that must land us in a wilderness of crudities, if a strong arm is not interposed to check it. Our colleges have done much, indeed, they have accomplished wonders, as is evidenced to your own comprehension, but they can not do all. Now what are the facts? Men untrained in special studies, often with meagre education, enter our colleges and are met at the outstart with problems the most difficult, requiring a large amount of intellectual culture to comprehend, much more to master. They are overwhelmed at once. They are at the top and vainly essay to discover the beginning. The result is a constant floundering through insurmountable difficulties until the end. Is it any wonder that men are turned out of colleges, good in practice it may be, and even passably good in theory, yet wholly unfitted to cope with that intellectual power, that is striding through all lands, and demands the fullest and completest attainment? There can be no remedy for this evil but a preliminary examination, thorough in its character and arbitrary in its demands. That this must come, whether this year or next, or a score of years hence, is certain, and only through its influence will we be relieved of the stigma of graduating uneducated men.

You can do much to help this sentiment in the profession. I am happy in the belief that the largest proportion of our graduates have been men of sterling attainments; but it is only through the accidents of life that this is so. Many more have not been of this character, a misfortune to them as well as to their alma mater. I speak plainly, for the hour requires plain thoughts.

The subject of education is receiving more attention than ever before. The fearful war, now devastating and making desolate the homes of two nations, has had one good result amidst the fearful physical and moral destruction it has brought about, and that is, that it has opened the eyes of the whole world to the power of an educated people. Already the national legislature is ringing with appeals to make our education a subject of governmental care, and our State is looking toward compelling every parent to send the child to school. Is it not then, proper and meet that we, in convention assembled, should earnestly take into consideration what will best advance our grade of scholarship, and give an impetus to our professional work? That it must be sooner or later done is plain to my mind, that it will be done is equally plain.

Should the time of study be lengthened?

I presume the necessity of this needs no argument. It is evident that our colleges are all lapsing into weakness by catering to the current American idea of rapidity of acquirement. The whole system is one of cramming from beginning to end, and while much is learned it requires the constant after training of years to digest that which has been secured. Superficiality is the bane of American life in all departments, and yet even in this land the boy apprentice to a mechanical branch can not enter the position of a journeyman under five years pupilage, and this, perhaps simply to give manipulative dextery, brain work being mainly left for superiors. The dentist, however, is expected to acquire his profession in two or at most three years, and to become to some extent cultivated in many collateral sciences. His first duty is to perfect himself in mechanical dentistry. This is a combination of several branches, and alone should have a close apprenticeship of four or five years. This study will embrace an amount of knowledge from the collateral sciences that will fully occupy the time allotted; but then we have operative dentistry also, that combines within its needs the skill of the artist, the knowledge of the anatomist, the coolness of the surgeon, and the keen insight into the causes and remote results of disease of the general practitioner. That this will require more time than is usually given must be conceded. Then if to these we add the necessary branches of study, anatomy, physiology, chemistry, materia medica, histology and surgery, the curriculum is beyond the management of any single individual in the time given. But these are not all. No dentist can be considered educated who lacks general information on all the sciences. He should have a clear idea of comparative as well as general and special anatomy. If he is deficient in knowledge of the teeth of inferior animals, their general character and minute structure, how can he comprehend those he daily deals with? He can not possibly. Yet how few there are who have any definite comprehension of the intimate relations existing between the structure of the teeth of all animal life. While it is the duty of the college to enter into this study, it can never be fully elaborated in the short time permitted the teacher. Thus I might analyze all the collateral sciences. Each in its turn may be made available for our purpose; if not directly, at least so far as to build up the whole man, and make a cultivated being fit to mingle with and take part with scientific men everywhere. When this is accomplished, then will dentistry receive the full meed of respect, and not until then.

That all this could be achieved in any ordinary pupilage I do not pretend to affirm. I am no advocate for very long periods of probation. I would prefer that an individual should receive the basis of an education and not the whole education; indeed, the latter can never be done. My own opinion is, that four years of college life would be the proper period, following a year of preparatory study in the laboratory. This would give five years of training, a time not too long to be burdensome to a young man willing to be thorough in every department. With such a course, the studies could be properly divided and the labors of the student condensed into digestible proportions. Are these utopian ideas? Not at all. They are fully carried out in Europe, where seven years are required for the study of medicine, following a most severe classical course, and this time is not spent in idleness. To each year is given a study; to one anatomy, another physiology, to another chemistry, and the end of the year must find the student competent to pass a severe examination in each to enable him to advance. At the end of his term he has another severe examination, covering the whole ground; and then a still severer one by the government, in which, if he fails, he is forever prevented from the practice of medicine? Is it any wonder that German science leads the world? If, therefore, we would ever aspire to an equal position, we must reform in this respect, and the sooner we comprehend the importance of this, in all its length and breadth, the more quickly will we be prepared to take measures for its accomplishment.

While in the adolescent period of our profession, immaturity of thought and a lack of attention to more theoretical branches could be overlooked, trusting to the future to cure the evils consequent upon it. Have we reached or are we nearing that future? It seems to me the answer must be clear to every mind that we have. Upon whom, then, devolves the work of regeneration? On you, most assuredly. To you belongs the duty which became yours as part of that diploma, which you so earnestly worked for and so clearly earned. To mould the sentiment of a nation, to make a new path in the world of ideas, is the part of the profound, progressive thinker and worker, and marks the statesman above the mediocracy of his generation. Therefore, to us belongs the same duty, in a minor sense, towards the profession of which we are members. The work is one of magnitude, but difficulties to the morally courageous are but incentives to labor. The isolation of a graduate who settles in a remote section, surrounded by ignorant pretenders, may be imagined, but can hardly be realized. Shall we protect these? Shall the skill acquired by accurate training be wasted in vain endeavors to battle, single handed, this legion of ignorance? I trust not. The remedy, in part, lies at your doors. Organize everywhere in associations. Allow no man to enter who can not show a diploma or submit to a thorough examination. Avail yourselves of your law makers, and secure the future if you can not remedy the past. I am well aware that men of ordinarily good judgment are opposed to any legal force to remove this evil, and while, as a rule, I have more faith in the ultimate spread of intelligence, to arrest this widespread quackery, I have still a belief that the innate depravity of man, or whatever you choose to call it, tempts him to continue the evil, unless superior forces lead into the path of good. At all events, we have the ripe experience of European nations to prove that such laws are of great value, if properly carried out. When a man knows there is but one road to reach the goal desired, he will set about to find that road; but if there be many, he will in all probability select that which seems the shortest, regardless of the many quagmires and obstructions he may meet with. This is human nature. Recognizing this, then, as a fact, our duty is plain. Laws of a stringent character must be passed, prospective and not retrospective. We can not go back and say that every man in practice must submit to an examination; but we can say and must say, that no man in the future shall enter the practice of dentistry without a diploma from a regularly chartered college. This will not benefit *us* materially; but those of a half century hence will feel the full value of our exertions. You graduates of dental colleges can do this. On us this duty devolves, and woe be unto us if we are faithless to our mission.

There is still another duty devolving upon you. Support your dental colleges. See to it that they have material aid that will enable them to carry their mission to its highest fulfillment. Give them the full weight of your moral support and sympathy. The difficulties, the anxieties, the severe labor that falls to the lot of the teachers in these, few know and still fewer appreciate.

There are many critics of instruction, but how few competent to instruct, or if competent are willing to sacrifice self for the good of others. That I believe colleges are imperfect you already know, and that they have performed a wonderful work for good can not be denied. Give, then, the various Faculties your earnest support, and in giving you will build still higher the temple to knowledge.

The hour in which we work is full of promise. Enlarged ideas of man's aims and destiny are taking the place of narrow, bigotted views. The grand in human nature is overleaping the contracted selfishness of by gone ages. Facts are recognized and mere theories discarded. Science, with her irrefutable logic, is scattering the twaddle of the past like chaff before the whirlwind. Men are becoming thinkers, and the more reason guides the helm, the more will the world advance. I congratulate you that in this hour of promise there is so much to be labored for. You know the path, follow it; and though you may not reach all that is desirable of attainment, the fact that your minds have wrought in the intellectual mine, and that you have labored to give the thoughts expression, will bring with it its own true reward. None of us may hope to be appreciated. The true worker never gives this a thought. The development of an idea is to him always self-sustaining. He can wait patiently for results, knowing that in the good time its truthfulness will be manifest. In the love, then, we bear our profession, by the hallowed memories of those who have past—by the interest of the living present, and the great needs of an unborn future, let us ever keep working, and the tiny seed will grow into the sapling and the sapling to the tree, and under its shadowy foliage we may end our years with the consciousness that we have not wholly lived and worked in vain.

Editorial.

A NEW IMPRESSION CUP.

Dr. B. F. Rosson, at the recent meeting of the Mad River Dental Society, described a method of taking impressions of the gums, for preparing sets of teeth, somewhat different from that ordinarily pursued. The principle consists in obtaining an impression only of the parts upon which the plate is to rest; this is done by using for the lower jaw, a very narrow impression cup, and almost flat instead of deeply concave, as they usually are. This may be bent so as to partake as nearly as possible the form of the ridge of the jaw. A sheet of softened wax is then put upon the cup or holder, and then pressed upon the jaw till a good impression is secured; then trim down the wax just to the size the plate is to be, now use this for the plaster impression cup; a very small portion of plaster properly prepared will be sufficient to obtain a very perfect impression. The plaster should at no point be permitted to pass much beyond the proposed border of the plate, this is to prevent pressing and distending the soft tissues on both sides of the ridges, such distension usually draws the mucous membrane of the gum out of position. Immediately after the cup with the plaster is placed on the jaw the tongue should be raised above the cup and kept there till the plaster has set.

The cup for the upper jaw should not extend much beyond the ridge all round, so that the same principle is observed as described for the lower. T.

THE MAD RIVER DENTAL SOCIETY

Met on Tuesday, May 9th, at Dayton. There was quite a large attendance, and a very interesting meeting was held. Several essays were read, and much interesting discussion was had upon them, and also several topics discussed upon which no papers were read.

The subject of professional education elicited a very general and interesting discussion; high ground was taken by all the members. An unmistakable desire was expressed that our colleges should take higher ground in the matter of training young men for the profession.

Many new modes and appliances were presented that were valuable, interesting and instructive. The Mad River Dental Society is one of the active societies of the State, and should have in its membership, every active member of the profession in the south-western part of the State. The next meeting is to be held at Yellow Springs, on the second Tuesday of September next, when it is expected there will be a large meeting; the place is delightful, and one that will induce many to bring their wives with them. It is proposed to continue the meeting two days, and intersperse social enjoyment with professional work, then let all come with this end in view. T.

A PUMICE POLISHER.

Dr. R. B. Bole, of Urbana, Ohio, prepares polishers by cutting from blocks of pumice, rods or sticks of the desired size, cut them into sections of one half inch to an inch in length, then drill a small hole in one end, and fasten in it a wooden pin with shellac; this affords an attachment for the port polisher. Now the section can be filed or ground to any desired shape and size, a variety of shapes and sizes will be found useful for dressing fillings and polishing teeth.

THE NORTHERN OHIO DENTAL ASSOCIATION.

The Northern Ohio Dental Association met at Put-in-Bay, on Tuesday, May 2nd, with quite a large number of the members in attendance. The sessions continued two days, and were interesting indeed. The discussions were upon important practical subjects, and were participated in by nearly all present. New thoughts and ideas were received by all present.

The location, doubtless, had much to do in making so good a meeting, it is one most charming—one of the most lovely spots anywhere to be found.

Put-in-Bay, with its matchless beauties, its splendid scenery, its ample hotels with their fine appointments, its genial West and Sweney, all together combine to make this one of the most pleasant and delightful places anywhere to be found.

So well pleased were all the members of the society, that it was unanimously voted to hold the next annual meeting at the same place; indeed, they thought it totally impracticable to try to hold it anywhere else, for certainly all who went there will go next year, and endeavor to induce every body else to go. T.

THE HOT AIR SYRINGE.

In the spring of 1855, the late Prof. Elisha Townsend, Dr. Samuel S. White, and the writer were together at the residence of Dr. J. M. Brown. Dr. T., with his usual enthusiasm, expressed a wish for some one to tell him how to thoroughly dry a cavity, preparatory to filling. Said he: "I don't mean, how to dip most of the water out, but I mean *dry—absolutely dry.*" His earnestness acted like inspiration on at least one of his auditors. The writer of this replied, "Why, Doctor, throw a current of warm air into it." "That will do it," said he, "get up your instrument." The same week, the writer and Dr. Taft demonstrated the principle with an instrument imperfectly—indeed but partially constructed. The experiment being satisfactory, the writer, having more leisure than Dr. T., constructed a complete instrument, which was regularly used and exhibited on suitable occasions. At the meeting of the American Dental Convention, at Hope Chapel, New York, in 1856, this instrument was borrowed by a dentist who forgot to return it.

From this instrument, with suggested modifications, the drawing was made, which appeared first in Toland's *Dental Catalogue*, and afterward in Taft's *Operative Dentistry*. Previous to the Hope Chapel meeting the instrument had been described in the Dental Register, over the signature of Taft & Watt.

The instrument did not receive the attention it deserved. It should be in the hands of every operative dentist. The rubber dam enables us to keep cavities dry, and this instrument, in connection with it, makes tooth-filling a pastime, as compared with former modes of operating.

The instrument has been so much neglected that Dr. Moffett has invented it over again; and, if it would hasten its general introduction, it ought to be invented every six months. It is now on sale, at a moderate price, in the depots generally. W.

EIGHTH DISTRICT SOCIETY OF NEW YORK.

We attended the meeting of this society in Buffalo, on the 9th and 10th of May, and found the members actively engaged in the cause of dental progress. About forty members were present, and all seemed to be earnest and cordial. Visitors received such a hearty welcome, that they almost forgot they were not members. A number of valuable essays were read, and the discussions were mostly of a high order.

Among the visitors was Dr. Bonwill, of Philadelphia, with his electric plugger. This instrument was practically tested in the presence of the society. Like many other inventions, it looks very simple now. Had a telegraph operator turned dentist, he would have thought of it at once. We have simply the to and fro motion of the ordinary galvano-electric machine, the hammer striking the plugger, and driving it the one-fiftieth of an inch, just before it is arrested by contact with the magnet. The blow is sufficiently strong, and its force may be increased or diminished by varying the length of the stroke, which is done by a set-screw. The strokes are very rapid, and they may be at once suspended, by moving a slide with the index finger. The plugger may be rotated with the thumb, without changing the general position of the instrument.

A social meeting at Dr. Southwick's in the evening, was very enjoyable, and doubtless, added much to the pleasures of the occasion. If Mrs. S. and daughter intended to make us forget the cares incident to professional life, they may feel flattered with their success.

But, after all, this society should either add a day to each meeting, or forego its usual social enjoyment. A social meeting can be gotten up at any time; but when forty dentists get together, each one should try to learn all that the other thirty-nine can teach him.

But we can not do justice to the meeting. Those who should have been there, but were not, can have no idea of the loss they have sustained. Their patients will one day find out that they are behind the times, and such discovery will be expensive.

W.

PROGRESS.

The Missouri *Dental Journal* notices Dr. Rehwinkle's address to the late graduating class in the Ohio College of Dental Surgery, and says, "In the course of the address the Doctor makes use of the following language:

'As a specialty of medicine and surgery, operative dentistry involves a necessity for a general knowledge of the whole science of the healing art.' The world moves! The address is creditable to its author."

That the world moves, is true; but Dr. R's remark at the late commencement, is no proof of the fact; for Dr. R. never held any other sentiment, neither did the Ohio College, nor any one who was ever a member of its faculty, or in any way responsible for its teachings. The remark of the editor only indicates that the Missouri *Journal* is progressing smoothly. When one is moving without any jarring, he fancies that all he sees is in motion, just as a drunken man imagines that even the lamp posts and shade trees are staggering past him. We leave the *Journal* to draw inferences, as we have no cork screw. W.

EDUCATIONAL.

To show that the Ohio College of Dental Surgery no longer stands alone in the plan of its curriculum of study, we give below the announcement of the Medical department of Harvard University. This announcement is so gratifying that we can not refrain from copying it in full.

Now either Harvard University is very much mistaken and blundering terribly in this matter, or the Ohio College of Dental Surgery is on the right track It has seemed very strange to us for the last few years that almost all medical and dental teachers should recognize and freely admit that the plan of instruction usually employed is very imperfect and inefficient, and yet no effort be made at all for its improvement, either in the prior attainments or in the curriculum of study. The truth is that there exists such degrading competition in the medical and Dental schools throughout our country, with few exceptions, that the results of their labors is the casting upon society a host of incompetents, who assume with the most perfect assurance the duties of one of the most responsible occupations of life. Such a competition as involves the letting down the standard of requirements to a most debasing level, degrading all concerned; demoralizing both teachers and students.

Our colleges should have a door of entrance through which no one not properly prepared could enter, and an exit door at the top which none should be permitted to pass who had not properly and squarely mounted every step to it. Then and not till then will medicine and its specialties receive that regard and appreciation which the duties and responsibilities seem to require.

T.

HARVARD UNIVERSITY, MEDICAL DEPARTMENT,
BOSTON, MASS., 1871–72.

CHANGES IN THE PLAN OF STUDY AND THE REQUISITES FOR A DEGREE.

The regular course of study for persons who begin their medical education at this school, will occupy three full years. The year will begin on the Thursday following the last Wednesday in September, and end on the last Wednesday in June, and will be divided into two equal terms. The instruction will be given by lectures, recitations and practical exercises, throughout the year. The general subjects of the regular course of study are:

For the first year—Anatomy, Physiology and general Chemistry.

For the second year—Medical Chemistry, Materia Medica, Pathological Anatomy, Theory and Practice of Medicine, Clinical Medicine, Surgery and Clinical Surgery.

For the third year—Pathological Anatomy, Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, Surgery and Clinical Surgery.

No student will receive his degree until he has passed a satisfactory examination in all the above-mentioned subjects. Examinations in all these subjects will be held at the beginning, middle and end of each year.

Students who take the regular course of the school will be divided into three classes according to their time of study and proficiency. Students may be admitted to advanced standing in the regular course; but all persons who apply for admission into the second or third year's class must pass an examination in the branches already pursued by the class to which they seek admission. Students who fail in any subject at one examination may be examined again at the next examination. The regular examinations will be held in the following order:

At the end of the first year—Anatomy, Physiology and Chemistry.

At the end of the second year—Medical Chemistry, Materia Medica, and Pathological Anatomy.

At the end of the third year—Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, Surgery and Clinical Surgery.

Students who begin their professional studies elsewhere may be admitted to the school and become candidates for a degree without joining the regular classes; such students may take up the subjects which they have not previously studied, in such order as may be thought best, passing the examinations at the beginning, middle and end of each year.

Students who do not intend to offer themselves for a degree, may join the school for one term or more, and pay for instruction in such subjects as they may select. Such students will be furnished, without examination, with certificates of attendance.

Requirements for a Degree.—Every candidate must be twenty-one years of age; must have studied medicine three full years, have spent at least one continuous year at this school, have passed the required examinations, and have presented a thesis.

Fees.—For matriculation, $5; for the year, $200; for either term, $120; for graduation, $30; for courses in single subjects, according to the detailed announcement.

The plan will go into operation on Sept. 28, 1871, but the changes above described will not affect students who have already entered the school, unless by their choice.

For further information, address

Dr. C. Ellis, *Dean*,
114 Boylston Street, Boston.

THE LAW.

We give below a copy of the law regulating the practice of dentistry in the State of Ohio. It was published in the REGISTER about the time of its passage, but so frequent have been the calls for it recently, that it is well that it be again published. A great many seem not to understand its provisions, its power, nor the method of procedure under it. But it is so plain, brief and comprehensive in its statements, that it seems there is no room for misapprehension after a careful perusal. We may refer to its chief points:

1. It is unlawful for *any one* to commence the practice of dentistry in the State of Ohio after the 8th day of May, 1868, without having a diploma from the faculty of a dental college duly incorporated under the laws of this or any other State of the United States or foreign country, or a certificate of qualification issued by the State Dental Society. This applies alike to those beginning the practice of the profession, and to practitioners coming from without the State.

2. Any one practicing in violation of this law may be prosecuted, upon information being given by *any person*, to the prosecuting attorney of the county in which the offense shall have been committed. The violators are subject to prosecution for each and every offense. Such practitioners could not collect their bills by law, nor would they attempt it.

3. It is a clear violation of the law for a person not legally qualified to enter into practice under the name of another person instead of his own, or to enter into active partnership with one who is qualified legally. No practitioner who is in the proper legal position can afford, neither on his own account or that of the profession or the public, to encourage any to disregard this law, or to violate its provisions.

AN ACT TO REGULATE THE PRACTICE OF DENTISTRY IN THE STATE OF OHIO.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio*, That it shall be unlawful for any person to practice dentistry in the State of Ohio for compensation, unless such person has received a diploma from the faculty of a dental college duly incorporated under the laws of this or any other State of the United States or foreign country, or a certificate of qualification issued by the State Dental Society or by any local society auxiliary thereto: provided that nothing in this section shall apply to persons now engaged in the practice of dentistry in this State, before the first of January, 1873.

Sec. 2. Any person who shall practice dentistry without having complied with the regulations of this act. shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be fined not less than fifty dollars, nor more than two hundred dollars; provided, that nothing in this act shall be construed to prevent physicians and surgeons from extracting teeth.

Sec. 3. All prosecutions under this act shall be by indictment before the court of common pleas in the county where the offense was committed, and all fines imposed and collected under the provisions of this act, shall be paid into the treasury of the county where such conviction shall take place, for the use of the common schools within such county.

Sec. 4. This act shall take effect and be in force from and after its passage.

IN MEMORIAM.

At a meeting of dentists, held at the office of Dr. Berry, the following resolutions were adopted, expressive of the sense of the profession in regard to the death of Dr. J. G. Willis:

Resolved. That in the very sudden and unexpected death of Dr. J. G. Willis, of this city, we regard a marked instance of the inscrutable working of His hand to whom we are all responsible and subject.

Resolved, That we can not but lament the loss of a member of our profession of such marked ability, both natural and acquired. Of him much was expected by his profession, and that expectation was always honored. He stood highest in the estimation of those who knew him best.

Resolved, That in his death we in common with all who knew him suffer the loss of a valued and useful member of society—one whose kind hearted geniality and Christian, gentlemanly bearing could not but be recognized by all.

Resolved, That we tender to the bereaved family our most sincere sympathy, and express to them the great sadness we can not but share with them.

James Leslie, *Chairman*.

H. A. Smith, *Secretary*.

THE

DENTAL REGISTER.

Vol. XXV.] JULY, 1871. [No. 7.

Communications.

DENTAL PHYSIOLOGY.

BY G. R. THOMAS, D. D. S.

In presenting a single article, upon so *vast* and *boundless* a subject as "Dental Physiology," it certainly can not be expected that its author can even *generalize*, much *less particularize* upon the various points of interest as they daily occur to the dental practitioner, and *especially* to the man who is *allied* to his profession, and is "thoroughly awake to every good work," but only to enter the field at random, and to scatter thoughts in like manner; and if any shall fall upon good ground, and spring up, and bear fruit to the good of the profession and to humanity, the object sought by your humble servant will be achieved. First of all, *however*, a man to be a successful practitioner of dentistry, must needs have not only a thorough knowledge of the organs with which he has to deal, but a sound and reliable judgment upon which to base his operations, without which all his theory will prove about as useless as would a *fine* and *beautifully* constructed watch, perfect in *all* its parts, except its main spring. which had been left out by its maker. He should be a man of *sound body* as well as mind, temperate in all his habits, that his patients may have the full benefit of what justly belongs to them.

The men who build your house, till your ground, or drive your coach, *may* be men who are regular partakers of the flowing bowl, visitors of the gaming table, *or* closely allied to many other vices, and *still* be competent to perform all the duties required of *them*, in order that they may receive the remuneration they demand, and can only *expect* for the labor performed.

It is true the practice of dentistry is one of *real* labor, but is there one among us, *who* after spending a half day in *packing* and *burnishing* gold, would be satisfied in receiving the *same* compensation as does the bricklayer for a like amount of time spent in his vocation, when perhaps it has required no less *time* for *him* to fit himself for *that* branch of masonry, than it has you to acquire the art of packing and burnishing gold? But I trust there are none among us who are willing to accept the somewhat prevalent idea, that the "*ultimatum*" consists in knowing *how* to fill a tooth *well.*

Nor are there any among us, who would care to have his patient believe that the $15 or $20 he has received from him for the filling of a tooth, was in consideration of the *actual manual* labor performed; far from it, *because* our labor is no more worth $5 or $10 an hour, than is that of the watchmaker, who sits at his bench eight or ten hours of the day, were it not for the knowledge we have, or are *supposed* to have, of the delicate organs with which we are dealing; and just in proportion to the knowledge we possess of those organs, their structure, their development, the functions they are called upon to perform, the idiosyncrasies of our patients, and various diseases attending them, and the means at our command to *arrest* and *prevent said* diseases, in just such proportion, shall we be enabled to command the confidence and respect *of*, as well as the remuneration for our services from our patients.

What would we say to the dentist who would mallet a beautiful and well constructed filling into a cavity containing an exposed pulp, without first protecting it from the action of the gold? We should at once set him down as an ignoramus, and *he* would doubtless be treated to the exquisite pleasure of having his patient to *sit* down on or about the day following, for the examination of a sick and painful tooth.

He might succeed, however, in making his patient believe for a time, that the trouble was owing to the influence of the mallet. or that the tooth was naturally depraved, for want of a better reason to give. Or what would we say of the man who upon finding an exposed nerve, would at once resort to *destruction* and *extirpation?*

We should say, he belongs to a class, who we hope are fast becoming extinct; or what say you of the man who succeeds in making his patients believe that the tooth which *aches* demands *immediate* extraction, or that the extraction of good teeth is necessary to the securing of an artificial denture, or that salivary calculi is a product of the stomach, —as I have myself heard it said—or that the extraction of six year molars would be followed by second teeth.

Such practice may do for a time with a certain class, but the "*truth* is *mighty* and *will* prevail." But this is not "Dental Physiology." First then a word upon dentition, for when we take into consideration the fact, that one-sixth of children perish from the accidents of dentition,—in which medical statistics will bear me out—it becomes evident that we as *medical* advisers can not give it too much attention. *I* can not believe that dentition of itself is attended with very serious or very painful phenomena. It does not seem possible that nature would attach to the development of any of our parts, real danger to life, or such suffering as must directly threaten it. And yet, experience teaches that dentition is to be dreaded. It is therefore natural that we as practitioners should seek to discern what are the *causes* which can derange dentition, and render it fatal or painful.

Opinions have *varied* upon this important subject. *Some* have seen nothing to cause these accidents, but the degree of *sensibility* which *nature* has imparted to young children. But *such*, I fancy, have not *considered* that the gums are not very sensitive organs, that the nerves do not play a very important part in dentition, and that there *are* in the economy of infancy, *many* acts which much more than the development or formation of the teeth might occasion these serious accidents which are apt to occur at this period.

It is doubtless *true*, that morbid sensibility may contribute greatly to the suffering which infants experience in dentition. *But*, to look no farther than this, would be to examine but a small part of the causes that render this period dangerous. Others have looked no farther than to the fact of the pressure made by the roots of the teeth upon the alveolar periosteum.

These have not considered that the *shooting* of the teeth, characterized by the enlargement of the alveolar walls, the distention of the gums, occasioned by the formation of the body or of the crown of the tooth, is an epoch often more dangerous than that of the organization of the roots, which besides would do much more harm in compressing and binding the soft and pulpy part of the tooth, than the serous membrane which performs the function of a periosteum, and lines the interior of the gum, and the proper cavity of the teeth. Others again believe the whole difficulty to result from the resistance of the gum to the passage of the teeth. Now then, if the organic state of the system, if the compression of the periosteum, or if the resistance of the gum, (which *must* be opened by bodies, some of which are blunt it is true,) are the principal sources of *danger* in dentition, why, I ask, are not these dangers *constant* and *inevitable?* Why are not *all* infants exposed to the disorders in question? Why, also, does it happen, that the shooting of the teeth, (which must not be confounded with the eruption,) is often the only period of danger? Why do not brutes partake with *men*, the sorrowful evils of dentition? Why are *second* dentition and the cutting of the wisdom teeth unaccompanied generally with these disorders? And why is the *end* of the period of dentition, ordinarily more critical than the commencement? But it is not my purpose to enter into a a detailed dissertation of this subject of dentition, but simply to throw out a few suggestions. I can not refrain from saying just here, however, that it is my belief that the accidents that surround and mark the epoch of dentition, are almost all foreign to the infant. *For*, if it were not so, but on the contrary, if dentition were a malady, we could none of us expect to enjoy good health until eighteen or twenty years of age, since we are getting teeth the greater part of that time. Although this operation of nature be accompanied by fever, convulsions, and many other troublesome phenomena, yet we find so many cases of exemption, that it would be improper to consider these accidents natural, and to hide the fact that they proceed from too great a fullness, or from the corruption of humors put in motion by the pain of dentition.

It is true that the eruption of the teeth is scarcely ever *unattended* with pain, and indeed a little fever; but I believe if the blood and the humors are neither acrid nor too abundant, these accidents are so inconsiderable that they gradually disappear without further trouble.

And in summing up this whole matter of dentition, I am induced to believe, that when a child has come to its full term, when the mother has exercised prudence during pregnancy, has committed no improprieties in *eating* and *drinking,—and by-the-by this means a great deal,*—and the child had good milk from its birth, the teeth are cut easily enough, and with little pain.

And just here I am inclined to think that I can not proceed with this subject of Dental Physiology to better advantage, than to call your attention to what I believe to be the *true causes* of the physiological defects of the teeth of the American people, of this generation. I might go on and tell you of the *formation* of the teeth, of their *composition*, of their *blood vessels*, arteries, veins, nerves, nervous matter, and of all the diseases they are heir to, their treatment, etc., etc., but all these you have laid down in the text books, besides they are nearly always the subjects under consideration when writing upon Dental Physiology. And these, of course, are all necessary considerations; but I believe there is something far beyond these, and that *we*, as honest *advisers*, are bound to look after, and to give our patients the benefits of our researches, if we would make the *teeth* of coming generations, anything more than what we have in the present.

In *one* respect, if no *other*, the teeth differ very materially from other organs of the animal economy. They have no recuperative power, but to compensate for this defect, they are made of materials much more indestructible than those of any other organs; and being properly supplied with the elements necessary for the formation and nourishment, and used in accordance with nature's laws, they last the lifetime of the animal, and are not subject to disease. Is not this plainly proven in the lives of the lower animals? It is true, we oftentimes see decayed teeth in the mouths of the lower animals. *But*, what are the facts in the case? *Never* except they have been injured by accident, or have been made to eat improper food in the service of man. The *cow*, for instance, is a striking illustration of this. I have seen it stated but a short time since from *good authority*, that the teeth of the cow made to live upon the dregs from the breweries decay in a very short time. And, *furthermore*, that the teeth of those that were located a few miles distant from the breweries, lasted much longer than those located close at hand, thereby giving good evidence of what *I have* strongly advocated for some years, to-wit: That sudden changes of temperature is one of the causes of decay. For in this case the cause is clearly more mechanical than physiological, the still feed being given to those near at hand while hot, but becoming cool before being given to those at a distance. To understand this statement, we have but to consider that the *enamel* which protects the dentine from decay, and *glass*, are *very similar; both*, at *least*, requiring the combination of silex with some alkaline principle, and therefore must be alike under the physical law of expansion and contraction. Doubtless, *all* will admit the fact, that if I were to take a very thin and irregularly shaped piece of *glass*, and immerse it in water at a temperature of 200 degrees,—nearly the boiling point,—and then immediately change it to ice water temperature,—subjecting it to such changes for only a short time,—that it would not require a very strong magnifying power to discover an abundance of little checks, small, it is true, yet some of them large enough to admit the fluids of the mouth, and thereby giving the monster, decay, fearful and boundless sway. And is not this the very thing, that we as a people, are constantly doing with our teeth? Exposing them one moment to almost boiling hot tea and coffee, and at another to ice water or ice cream. An almost instantaneous change of from 80 to 100 degrees. And if the enamel once becomes broken in such a manner as to admit the fluids of the mouth, I believe that decay is inevitable, and that at no distant day.

But this is only *one* of the many causes of decay, this being what we may denominate *mechanical*, while the greatest of *all* is purely physiological, which I believe our ancestors for the most part are responsible, for we know that the *universe*, and all things in it, whether of mind or matter, are moved and regulated by fixed laws, and so long as they remain *undisturbed*, all is well, but the violation of any *one* is *sure* to bring its penalties. All *suffering* and all defects may therefore be traced to the violation of *some* law of our being, and the question now comes, what law have we violated, *for* that we—or our ancestors rather—are guilty, is certain, *or* why are not our teeth as good as those of the lower animals. That they are made as perfect if the right materials are furnished, there can be no doubt, for all nature as well as the Bible, teach us that the crowning work of God's creation was man. To whom He says: "Behold, I have given you every herb bearing seed, which is upon the face of the earth, and every tree, in the which is the fruit of a tree yielding seed; to *you* it *shall* be for meat." He also says the life of man shall be "three score years and ten," but the violation of nature's laws has reduced it to an average of thirty-three years.

The child, while dependent upon the mother, gets lime, phosphorus, silex, potash, and all the other elements of which the teeth are composed, in just such proportion as she gets it from the food nature provides, containing these elements in their natural proportion. But where can the child in its forming state, *get* these necessary elements, whose mother lives principally on starch, butter and sugar, neither of which contains a *particle* of *lime*, *potash*, *phosphorus* or *silex?* Nature performs *no* miracles. She makes teeth as glass is made, by combining the elements which compose them according to her own chemical principles. And this illustration is the more forcible, because the composition of the enamel of the teeth and of glass, is very nearly identical—both at *least* requiring the combination of silex with some alkaline principle.

If then, the mother of an unborn or nursing infant, lives on white bread and butter, pastry and confectioneries, which contain no silex, and very little of the *other* elements which compose the teeth, nothing short of a miracle can give her a child with good teeth, and especially with teeth well enameled. And thus is the iniquity of the fathers visited upon the children.

This applies more directly however, to the deciduous teeth, for the second tooth of a child is, for the most part, formed from materials furnished in the blood, secreted or taken up, and used in forming it by a mysterious power imparted to the little gland or nucleus, placed for that purpose directly under the first tooth, but entirely independent of it. And this mysterious power acts in this, as in all other organs, with unering certainty, and if the right elements are furnished in the blood, will be sure to find them, and furnish them in right proportions to the forming tooth.

But the trouble is the child's appetite is early educated to the use of unnatural food, by which these diseases and sufferings are so early commenced, and of course will follow on thoughtlessly, in the way in which its parents have started it, till it inevitably falls a pray to the diseases which are thus induced and perpetuated. I am often asked when discoursing upon this subject to my patients, "What articles of food *ought* we to eat, in order to make good teeth?" I answer, everything that grows will make good teeth, if eaten in their natural state, no elements being taken out, for every one of them does make good teeth for horses, cows, sheep, and all other animals that live on natures productions, pure and unadulterated. But when preaching this doctrine of diet, I am often asked, "Don't you think poor teeth are hereditary?" It is true some of the phenomena of hereditary diseases are very mysterious and very curious, but I believe that what we inherit in the teeth, is merely the want of the necessary elements, and in that way having its influence upon posterity.

I have often heard a mother console herself for the defect of her childs teeth, by saying, "*Well*, my teeth are bad, and my mothers were, and therefore, poor teeth are inevitable in my family." The fact is, such a mother and *grandmother* have lived on carbonaceous food, and drank hot *tea* and *coffee*, and the consequences *were* inevitable. But I am thoroughly convinced that if such a mother will commence to feed her child upon natural food, while it is young, and teach it to *continue* it in its older years, and avoid other causes of defective teeth, the consequences will be *also* inevitable, and the next *generation* will begin with better teeth, and by continuing the *course*, will continue to grow better, transmitting them from generation to generation. Let us then, in the name of Him whose we are, and to whom we expect to give an account "of our stewardship," strive not only to alleviate the sufferings of those around us now, but seek to educate them into such habits of life, as shall lead to a better and stronger physical organization, and as a natural consequence, good teeth will follow. Thus shall the members of our honored profession reap as their reward the respect and love of a grateful people.

PROFESSIONAL FIDELITY.

BY DR. L. PARMELE.

Read before the Connecticut State Dental Association.

"A capital subject," said a gentleman the other day, since our programme was announced, "but I think there will be little said about it." Whether this indicates the moral status of the dental profession, is a matter of which I will express no opinion. It would *seem*, however, to indicate the *impression* of the one who made the remark. As this is the topic upon which we are to exchange thoughts, I will proceed.

There are many ways to take money from a man's pocket, sometimes the process is summary and concise, at others it is wily and insidious. If you are met on the highway by a ruffian who demands your money or your life, you call him a robber. If a man stealthily enters your premises and takes away your goods, you call him a thief. If by false representations the size of your pocket book is diminished you pronounce it a swindle, and so on to the end. But for each of these you have a legal remedy, *provided* only you are fortunate enough to catch the *scoundrel.*

There are other modes, however, of obtaining money, scarcely less *reprehensible* or *dishonest*, where redress is not so easy. The petty tricks and deceptions resorted to whereby money may be obtained without rendering an equivalent are so common, that a man almost expects to be cheated at every turn, unless he places himself in the attitude of continual watchfulness, and one is nearly driven to the conclusion that dishonesty is the rule and honesty the exception in his dealing with the world.

But I need not enlarge. Your own imaginations will readily complete the picture. It may be set in a frame at your leisure, and might with advantage be hung up at the corner of every street, for the unwary to look upon and take warning. The familiar words so often seen at our railroad depots, "Beware of Pickpockets," might perhaps, appropriately be added.

I think it may be safely laid down as a principle, that whoever voluntarily assumes any duty where the interest and well being of others is involved, should by every principle of honesty, so to fit and qualify himself for his calling, that those who shall place their confidence in him may not suffer at his hands. This responsiblity can in no way be set aside.

There is perhaps no occupation in life which requires, and really demands so various and peculiar qualities and qualifications, as those needed to make up the character of an efficient and successful dentist.

To render himself agreeable and acceptable to his patrons, and secure their confidence, he must be frank, affable and courteous. To preserve equanimity of temper under all provocations,—and there will be many,—he must possess calmness and patience. He must have habits of neatness; his manipulations must be gentle, his deportment kind and forbearing, and to grapple successfully with all the duties devolving upon him, he must be at once mechanic, surgeon, dentist and physician. These, tempered with discretion and judgment, are some of the leading requisites to success in the practice of dentistry. And yet, while each and all of these may be possessed in a high degree, if he be deficient in that principle or quality which forms the first subject for our consideration, he lacks the one thing above all others which should recommend him to public confidence and patronage, and so far as his real character is known and read of men, he will neither have the one nor deserve the other. As the mariner's compass is the only reliance by which he guides his craft over the pathless sea, so fidelity is the only principle of action which renders a man careful and exact in the performance of obligations devolving upon him.

In years gone by, when the means of instruction and information were meager, and men were compelled to depend upon their own ingenuity and what little they could spy out with a sharp eye, a degree of ignorance might be winked at somewhat; but now it is far otherwise. With the light of science and experience radiating from so many sources; with opportunities and advantages so numerous, there can be no apology for entering upon the practice of dentistry without those qualifications which will enable one to discharge the important trust, with propriety and skillfulness.

A man has no right thus either to dishonor his calling, or to impose upon the community. If he does so, he does it in defiance of the principle of common honesty, and in violation of the golden rule. Surely such an one can lay no claim to serving his patrons with fidelity.

Should it be objected that such a course of preparation as here indicated, would be expensive, and consume too much time, I would suggest that the shorter method be adopted of "drawing at sight."

We have a just right to expect fidelity in the tradesman, the mechanic, the farmer, the domestic servant and in our friend, and whoever fails to perform his part in accordance with either stipulated or an implied understanding becomes, in some sense at least, a swindler—he is obtaining goods under false pretenses.

The man, who, having spent a few weeks with some one who perhaps knew little more of dentistry than himself, puts out his sign with "Surgeon Dentist" in glittering letters, followed by an advertisement in some public print, accompanied with a flattering editorial—probably written by himself,—setting forth his extraordinary merits, generously paying the editor a handsome fee to endorse the lie, becomes no less a swindler than the man who sells you chalk for cheese, or calcined plaster for wheat flour, and as richly merits the condemnation of the community. Nay, more so, for in the one case you discover the cheat in time to save your stomach, and you only lose your money. In the other you lose your money, but the cheat is not disclosed until too late, when your teeth have followed it.

This is no overdrawn picture gotten up for exhibition. It has in it more truth than poetry.

Do you ask then if all advertising should be discountenanced? I suppose a man has an undoubted right to speak the truth. Where, when, and how he shall do it, becomes a matter of expediency and discretion with him. If he sees fit to speak it through the common newspaper, the privilege is his, only let him "speak the truth and lie not."

What is fidelity? Defined by Webster, it is "faithfulness, careful and exact observance of duty or performance of obligation." What then does fidelity demand of the dentist, if he is called upon for advice? It demands that his examinations shall be *unselfish*, *careful* and *thorough*, and that advice be given accordingly. That he shall *not* in order to secure an engagement, so express himself as to raise expectations not likely to be realized, and which will probably or possibly result, not only in disappointment to the patient, but in discredit to himself and to the profession.

In his deportment towards, and in relation to other dentists, it requires that he should be honorable and friendly, always avoiding the use of language designed to create unjust and false impressions, or to cast undeserved reproach upon their character or reputation.

It does not, however, require that their crimes or misdemeanors shall be concealed.

There is, I regret to say, a habit among dentists of hurrying through their operations with little regard to the quality or character, as if the money, and the shortest possible time in which it could be grasped, were the only things to be thought of or cared for, which deserves severe censure. Such services are not worth the material wasted. They are sure to fail—have brought much discredit on our profession, and victimized many an unfortunate. I speak not of the price charged, but of the injustice—the cheat. In filling a tooth the object desired is its preservation. If for want of thoroughness it results in failure, the patient has not received what he bargained for. He is victimized—swindled. A man must put his own estimate upon his services. When that is done, let them be rendered with fidelity.

Fidelity also requires, not only that a man shall render strictly and always equivalent service for pecuniary consideration, but it takes him further. There are obligations reaching deeper, higher, and beyond all considerations of mere dollars and cents. There are duties which man owes to his fellow man from which even the dentist is not exempt, and which demand *sometimes* service without compensation, except so far as it brings its own reward, and which often outweighs all pecuniary consideration. There will be instances in the practice of every dentist wherein he will be called to exercise his liberality and benevolence.

If we see a man suffering with hunger, is it not our duty to feed him? If he is beset by ruffians, and lies bleeding by the way, shall we not bind up his wounds and provide for his necessities? So, too, in the practice of our profession, we shall often find opportunities and *demands* for the exercise of that charity which "seeketh not her own" and "never faileth."

No man, however, is required to engage in any arduous employment without being entitled to that reward which comes of industry. And it is in justice due to him who shall spend his time and money in properly qualifying himself to be especially useful to others, that he should realize such advantages from his labor as shall place him beyond the reach of want in his advanced years. But the satisfaction arising from a consciousness of having performed well an incumbent duty—of relieving the suffering and unfortunate, as well as of rendering a service equal to the recompence, makes duty to become a pleasure, and sweetens every toil.

So then let it be ours to emulate each other in raising high the standard of our vocation. Let fidelity in living characters be inscribed upon it, and the golden rule as a shining wreath ennoble and adorn it.

PHRENOLOGY AND DENTISTRY.

BY H. L. AMBLER, D. D. S., M. D.

Read before the Forest City Society of Dental Surgeons.

"Phrenology, is a system of mental philosophy founded on the physiology of the brain. It treats of mind, as we know it in this mortal life, associated with matter, and acting through material instruments." It is established on the broad and immovable basis of the constitution of man, and when practically applied, enables us from the size and shape of the head, in connection with observations on the body, to judge of the natural tendencies and capabilities of the individual. It teaches us to cultivate and develop all the higher qualities of mind and heart; to make the most of ourselves and our opportunities. For the more we know of anatomy, chemistry, physiology, and all other sciences, the better will we be able to conform ourselves or others, to a high standard of excellence, both moral and physical. The convolutions of the brain are the mind's revolvings, and are here represented in beautiful moving spirals; and the subtile insinuation of thought, whose path is through all things, issues with power from the form of these graceful cerebral screws. They print their shape and make themselves room on the inside of the skull, and are the most irresistible things in the human world. "In size, texture, and configuration, the brain partakes of the nature of the soul, and as we find the brain, so will we find in harmony with it the cranium, from which we read in general forms, or special elevations and depressions, the intellectual and moral character of man. The skulls of nations and races differ widely in form, and these differences are found to correspond with known national characteristics. The brain is the organ of the mind, every faculty of which has a special organ in the brain; thus every mental affection must be accompanied by a corresponding state of its separate organ in the brain, and the manifestations of mind will bear a strict relation in power and variety, to the size, strength and quality, of its instrument. Having stated the main principles which we are to consider, let us enquire what special development of organs are necessary to constitute a successful dental surgeon? We shall first notice the perceptive faculties. The organ of individuality, is situated in the center of the lower part of the forehead immediately above the base of the nose; it tends to observation, and leads to giving a specific form to all the ideas of the mind. The organ of form, is located at the internal angle of the orbit; it enables us to remember forms and objects of all kinds, and to judge well of symmetry and proportion. The organ of order is situated over the external angle of the eye; it gives preciseness, method, and is a co-worker with the reflective faculties in the conception of system and classification. The organ of destructiveness, is situated immediately above the ear, and when well developed, gives prominence to the center of the basilar region of the head; it gives us force and energy to overcome obstacles, to endure and inflict pain, as in surgical operations, to face trying things in our practice, to be resolute and not shrink from inflicting pain which is requisite to a cure. If necessary to cultivate this organ, do so by striving to remove or destroy whatever impedes your progress, as the removal of bone or tissue, sensitive dental caries, on extracting roots; do not be afraid of causing pain. The organ of constructiveness, is situated at the inferior outer part of the frontal bone, just above the spheno temporal sutures; measure from the middle of the top of the ear, one inch upward, and then about 1¾ inches horizontally forward, and you locate this organ; it gives skill in manipulation, mechanical ingenuity, enables one to construct whatever his necessities or higher sentiments require, coming from the most simple artificial, to the finest gold operation, it is essential in making instruments, carving, or anything requiring manual nicety. This faculty is generally well developed in American heads, and when combined with good imitation, gives one the power to produce almost anything they have a pattern for, or have seen made, and they often contrive new ways of doing things, always using their instruments with skill. Such elements as these, combined with practice, will make a good operator. The organ of combativeness, is situated about 1½ inches back from the top of the ear, corresponding with the inferior posterior angle of the parietal bone, above and a little behind the mastoid process; it gives resolution, promptness, courage, and a will to overcome obstacles A considerable development is indispensable to great character, such as would enable the possessor to look undaunted on a contest for humanity or virtue's sake, and meet it without shrinking. This faculty tells us to face danger in any form, letting no difficulties discourage in carrying out plans, but be cool, never lose presence of mind, and strike boldly in a good cause. The physiognomical sign, is a marked enlargement of the neck below the organ; also prominence of the ridge of the nose is believed to be another sign. To cultivate this faculty, when deficient, we should seek to engage in mental discussions with those of our profession, whose ideas are somewhat different from our own; we should not shrink from, but rather court those operations which call out our highest powers of courage, resistance, and skill. The organ of cautiousness, is situated on the lateral posterior part of the head; by drawing a perpendicular line upward from the back part of the ear to where the head begins to round off, we strike upon this organ, which renders us judicious, prudent, watchful, guarding against danger, knowing it to be more difficult to sustain, than to acquire a good reputation; new undertakings are prosecuted carefully at first, anxious to anticipate any cause of trouble. Cautiousness may be aroused to activity by intellectual effort. A prudent and watchful policy should be adopted, observing where we have failed in our attempts before; we should be determined to remedy these defects, knowing that most of our misfortunes come from some fault of our own, or are the result of rashness; possibly we have not taken the time we feel we ought to have done in making preparation, before trying an operation, or may be we pass over a main point thinking it will answer. Those in whom this faculty is well developed, seldom break any article, and work with sharp instruments without cutting themselves; are judicious in making plans, rather deliberate, counting the cost before engaging in any enterprise. Nature intends that our own natural predilections should be somewhat of a guide in choosing a pursuit for life, and we claim that a good phrenologist will predict in advance whether a boy will succeed in our profession. He does it by consulting his organization and determining what are his tastes, tendencies and capacities, and instead of making a dry monotonous preacher, an indifferent lawyer, or a blundering dentist, he tells him he will succeed finely as a business man, machinist or farmer. There are only a few persons with such well balanced heads, that they would be successful in almost any undertaking. Self knowledge has been always considered the most important of all learning; then phrenology, which is the key to this knowledge must be of great moment, for it enables us to ascertain our own weak points and guard against them; also to cultivate those faculties which are deficient, and would otherwise lead us in a wrong direction, for by right cultivation do we turn them to paths of purity. Next to knowing ourselves, is to know our fellow creatures, those whom we come in contact with professionally, for much of our happiness and success depends upon our friendship for them, and the knowledge we have of their characters. Phrenology gives us success through an understanding of human nature, and tells us how to treat our patients, among whom we find all manner of organizations. In controlling the children we operate for, no one method will answer, but we find we are obliged, in order to succeed, to address ourselves to their mental organization, thus may we discipline and govern them in a reasonable manner, knowing that each faculty is normally good, we can proceed in a proper way to gain their confidence. Every faculty of the human mind is capable of being improved by culture, this fact is of practical importance, and will give encouragement to the faltering. If we wish to develop any part of the body for a certain feat of endurance or agility, we give it a training under proper circumstances, and by well adapted exercises; thus do we proceed with each or any faculty of the mind, applying the necessary culture, through its organ, the brain. Developing the lower faculties, and having them act in harmony with the higher, will contribute much to the happiness of man. It is necessary that one in our profession, should have a contented mind, for how well we know that emotions of grief induce a relaxation of the system, especially affecting digestion and secretion; thus do all conditions of body and mind, whether constitutional and permanent, or pathological and temporary, act and react upon each other. Hope and joy quicken the circulation, steady and brace the nerves, strengthen the muscles, and fit us for our best efforts. A combination of the *motive* and *mental* temperament is desirable, not having either predominate to excess, for it would have a tendency to lessen the symmetry and harmony both of body and mind, as one is influenced so much by the other, for in this development, we find our most active professional men, who are generally known by fair length of body and moderate fulness of limb. We find the most excitable, are those, having the vital and mental temperament greatly developed; being morbidly active in those whose nerves are disordered, and where the system has been the subject of abuse from alcoholic stimulation. Strive to guard against an excess of excitability, knowing that where all the faculties act harmoniously together, the real effectual strength of each is increased. Dental surgeons should have good health, for we are aware that from sound bodies, the great thoughts which have moved our profession and the world, have emanated. If the body be weak and sickly, we can no more think or study effectively, than we can wield the sledge hammer or follow the plow, much less manipulate in delicate operations, which require a certain tension of muscle, brain and nerve, which is taxing to the general system, in the highest degree. Respiration is one of the great functions of all physical life; as breath and life are identical, our vitality being in proportion to our respiration; and it really is quite true that "people die for want of breath," but it is their own fault, for they only *half* breathe, therefore they only *half* live. Cultivate this failing, by expanding the lungs slowly to their utmost capacity, many times daily in the fresh air. Digestion is effected by respiration and circulation; should the latter be deficient, the proper amount of blood is not sent to the stomach during digestion; and should the former be imperfect, the blood will lack strengthening power, as good blood is obtained from pure and well assimilated food, well oxygenated by breathing plenty of pure air; thus from good blood, circulation and respiration, we have built up structures of healthy muscle, nerve and brain. Let us not forget to take into consideration the *quality* of the *brain;* the quantity may be great and sufficient, but where it lacks firmness in texture, there will be no remarkable traits. Muscle to be the best, should be firm and tough, this would bring us to conclude, that the greatest minds are found, where there is a bulky compact brain, connected with a firm, densely knit, well constructed body. Yet animal power is not mind, but is that something which is required by the mind in this world; to manifest itself through a diseased state of the body, affects memory, reason, and philosophy; weakens the system generally, and those channels through which we were wont to receive pleasurable emotions, have with the thrill of an instant, electrified millions of nerves which spring to execute their perverted functions, wreaking on us the most terrible physical and mental torture.

ADDRESS READ BEFORE THE NORTHERN OHIO DENTAL ASSOCIATION.

At Put in Bay, May 2, 1871.

BY E. J. ROBINSON, PRESIDENT.

GENTLEMEN: Here, on this beautiful island, made historic by the immortal Perry, and his brave comrades, we have been permitted to assemble at our annual meeting, to enjoy the pleasures of social intercourse, and for that interchange of thought so essential to all who would succeed in our noble profession.

To me, these meetings have always been attended with great pleasure, and no small profit, and I hope this association will continue its labors until it has under its fostering care every reputable dentist in Northern Ohio. Next to our dental colleges, our associations have been the means of elevating the profession to its present standard, and may we not hope by renewed effort to achieve still greater success? No man among us is so humble or obscure, that he may not have it in his power to assist his fellow laborer in a greater or less degree, and I here express the hope that, in the future, as in the present gathering, discussion of the several subjects presented will be participated in by the members generally. We can not all be orators or even fluent speakers, but we can express ourselves in terms that will be understood, and perhaps *felt*, by our more gifted brethren.

There is hardly one among us who does not feel himself a better man and better dentist after having partaken of the feast offered at our annual gatherings. Here we have the beauties of dentistry freed from the perplexities of our daily practice—and truly, dentistry is a beautiful art. To fully appreciate its beauties, we must by diligent and well directed study, educate ourselves to a proper execution of those finer points, which can only be attained by years of patient toil.

Perhaps there are no persons in the community more directly connected with human beauty, which is the highest form of beauty, than the dentist; for the most beautiful and expressive part of the face is the mouth, and the expression of the mouth is dependent upon the teeth, and the teeth of the present generation are largely dependent upon the dentist. In vain will the eyes sparkle with joy and delight if the lips are compressed to hide a mouth full of defective teeth. The whole countenance, beaming with brightness, loses half its charm by the exhibition of a foul and unsightly denture. Half the charms of real culture are lost when expressed through an unsightly denture, and the expression of sorrow and grief is made hideous by the exhibition of this living tomb of decay. It will be seen, therefore, that the function of the dentist is to assist nature to bring forth her best points, to bring out "whatsoever things are pure, whatsoever things are lovely," by removing all the obstructions and arresting all the decays, regulating all the deformities and assisting her to do what she oftentimes in vain endeavors to perform.

But how to do this great work there can never be given any prescribed and invariable rules. We can all profit by the experience and genius of our predecessors, and return our thanks to the laborers that have gone before, but the duties of to-day belong to us alone, and we alone are responsible for the faithful performance of this sacred trust committed to our charge.

And now, gentlemen, how shall we best meet the responsibilities we have voluntarily imposed upon ourselves? There has been so much written and so much said upon the subject, that it is very doubtful whether I shall be able to advance a single thought that has not in some manner presented itself before. Still I am unwilling to let the present opportunity pass without some few suggestions.

There may be, and no doubt are, individuals who in their own estimation are so learned that they can dispense with the aid of our associations, and I shall be doing no injustice to such, if I say that no one knows everything relating to our profession, and he must be a very dull scholar who can not glean some valuable information from even an inferior mind.

Coming together as we do, each from his separate practice, with some special line of thought before him, it is but fair to presume that we may be able to add something to the general fund and thereby be individually benefited. Another great object we should ever have in view, is the public good. The great end of life is not self aggrandizement; he, therefore, who endeavors to benefit self alone, will find himself so narrowed in his thoughts and actions, as to be incapable of success, even in the direction he himself has marked out, and will ere long become a moral leper, shunned by all, and thus it will ever be.

In my intercourse with the profession, I have always found that he who, by a diligent study of dentistry and its kindred sciences, labors hardest to elevate our standard, finds himself most benefited by its ennobling influence, and before he himself is well aware of how it has been brought about, is standing at the head of the profession.

Let us then, each and every one of us, during the interval between our meetings, so apply himself that he can when we meet again, contribute his mite to the advancement of dental science, and by so doing, elevate himself and assist in making the meetings of our Northern Ohio Dental Association pleasant and instructive; a benefit to the patient as well as to the operator.

Gentlemen of the association, I thank you for the honor you have conferred upon me by placing me at the head of your honorable body, and for the kindness and leniency shown me in my short comings, well knowing that it is by your generous forbearance I have been enabled to perform the duties even in a very imperfect manner.

Again, thanking you, I wish you God speed in all your laudable undertakings.

A CASE IN PRACTICE.

BY H. SCOTT.

Mr. R. called to consult me about a case of neuralgia which he said had been troubling him for some time. He said he had no unsound teeth that he could blame, but that he had spent a sleepless night. The pain, he said, seemed to be in both his jaws, and put his finger to the upper bicuspids on the right side, as the point of the greatest suffering. There were four or five small gold fillings in his mouth, besides one of amalgam; otherwise there was nothing visible that could lead to the suspicion of toothache. I examined the approximal surfaces of all his teeth, and found them intact. The sounding hammer was next used, which caused pain in the second right superior molar.

HISTORY OF THE CASE.

Six months before, the tooth had been sore, with some tumefaction under the eye, and the patient underwent a three or four weeks course of alterative treatment for facial neuralgia, with no other recognized result than the simple baffling of science. From that time on he had suffered various kinds of harrassing pains in the jaws, ears and temples, and had taken large quantities of quinine and iron. The case had been submitted to two dentists, who could find nothing wrong with any of the teeth. At the time he called to see me, he had just come from his physician, and had in his pocket a professional prescription, which he left with me, but which I forbear to transcribe, further than to say that quinine was the governing ingredient.

TREATMENT.

The investing membranes were too much inflamed to admit of cutting out the filling and perforating the nerve cavity, except at the expense of considerable pain, and besides, that course did not, in my judgment, promise a successful issue under all the circumstances. I therefore suggested the removal of the tooth, which was done at once. The filling was in the anterior fissure of the grinding surface, and had a small face.

AUTOPSY.

Upon splitting the tooth with a hammer and chisel, the pulp cavity was found filled with a grumous fluid, the effluvium of which rendered the air of the room for a few seconds nearly irrespirable. The filling was narrow and deep, and had from the first impinged the membrane towards the labial surface of the tooth, and hence all the disasters which followed.

The single remark I feel inclined to submit at present is, that the remedial and healing arts seem not to be yet out of the wilderness.

PROFESSOR TYNDALL ON THE CHEMISTRY OF LIGHT—NEW EXPERIMENTS AND CONCLUSIONS.

On the 27th of January a paper by Professor Tyndall was communicated to the Royal Society, bearing the title "Action of Rays of High Refrangibility on Gaseous Matter," and he has recently repeated some of his experiments before the Chemical Society. During the last ten years he has conducted a series of investigations in which his principal aim was to render the longest waves of the prismatic spectrum interpreters and expositors of molecular conditions.

Reserving the full discussion of the subject for a future time, it may be stated in a general way (says Professor Tyndall) that all the phenomena of polarization observed in the case of the sky are manifested by the blue actinic clouds. They constitute, to all intents and purposes, pieces of artificial sky, and furnish an experimental demonstration of the constitution of the real one. They moreover exhibit additional phenomena which it would be neither convenient to pursue, nor perhaps possible to detect, in the actual firmament, enabling us to follow the polarization from its first appearance in the barely visible blue to its final extinction, when the particles have become too course to scatter perfectly polarized light.

The principal results of this first part of the inquiry may thus be summed up:

1. The incipient cloud, as long as it continues blue, discharges polarized light in all directions; but the direction of maximum polarization is at right angles to the illuminating beam.

2. As long as the color of the cloud remains distinctly blue the light discharged by it at right angles to the beam is perfectly polarized. It may be entirely quenched by a Nicol's prism, the cloud from which it issues disappearing

utterly. Any deviation from the perpendicular direction enables a portion of the light to reach the eye.

3. A plate of tourmaline with its axis parallel to the beam, stops the light; with its axis perpendicular it transmits the light. Hence the direction of vibration of the ether particles all round the beam is perpendicular to the beam.

4. A plate of selenite placed between the Nicol's prism and the cloud, shows the colors of polarized light, and as long as the cloud continues blue these colors are most vivid in the direction perpendicular to the beam. The cloud plays the part of a Nicol's prism.

5. The particles of the incipient cloud are immeasurably small, being at first far beyond the range of the most powerful microscope. But they gradually grow in size, and at a certain period of their growth cease to discharge polarized light. For some time afterward the light that reaches the eye when the Nicol is in its position of minimum transmission is of a magnificent blue color. In the present researches it is called the residual blue.

6. This proves that the ether waves which first feel the influence of the size in the case of the growing particles are the smallest waves of the spectrum. These waves are the first scattered, forming the primary blue; they, also, first escape from polarization and form the residual blue. Neither blue belongs to the matter composing the particles, for this matter may be transparent. The color is solely due to the smallness of the particles.

7. As the actinic cloud grows coarser in texture, the direction of maximum polarization changes from the perpendicular, and incloses an angle more or less acute with the axis of the illuminating beam.

8. In passing from section to section of the same cloud the plane of polarization often undergoes a rotation of 90°.

9. The chemical penetrability of various vapors and mixtures has also been examined, and experiments are described

where radiant heat at extraordinary intensity had been brought to bear upon vapors which showed energetic action under the feeblest waves of the spectrum. In no case were the powerful ultra-red rays found competent to produce visible action. They are as powerless here as they are upon the retina.

HEAVY FOILS.

BY A. A. BLOUNT, D. D. S.

Some time after heavy foils were discussed by experienced dentists, I made up my mind to give them a trial, and I am now satisfied from my own experience, that a much better and more perfect filling can be made with them, than with the lighter foils exclusively in use heretofore. I shall, in this connection, give my method of filling with heavy foils.

If the cavity is a small one, I commence the filling with No. 4 foil; if a large one, with No. 6, filling nearly to the surface, taking care to have the foil as level as possible to receive the heavy numbers. Take No. 60, cut the pieces a little larger than the surface of the filling, and "planish" down piece by piece with a "perfectly smooth" pointed instrument. Upon finishing the filling there will be no instrument marks upon the surface to mar its beauty. Frequently fillings made with the greatest care, with serrated points, and finished in the highest style of the art, present the appearance of not having been finished at all. Another advantage of finishing with planishing points, is a more perfect adaptation of the foil to the edges of the cavity, for the reason that a perfectly level smooth point, not only condenses, but at the same time, spreads the foil,—the heavier the foil the more it will spread,—so that a latteral pressure is had that forces the foil against the edges of the cavity, and makes the filling perfectly secure. With a serrated point, the pressure is in a direct line with the instrument, and only spreads the foil in proportion as the serrations are wedge shaped. While condensing a pellet, a tendency to curl up may have been observed, and sometimes in condensing a filling in the center, it will draw away from the edges of the cavity. That I should say is entirely owing to the deep serrated points, the more shallow and finer the serrations, the less the tendency to curl. Consequently with a smooth point, the difficulty would be entirely obviated.

In building up a tooth, I have often put from four to six pieces of No. 60 foil together, and planished them all down at one time, the foil working with the same facility as a single piece.

In building out the incisors the smooth points can be worked to the best advantage. When the walls of the cavity are frail and friable, the least touch of a sharp serrated instrument would shatter it, whereas with a smooth point, the foil can be laid over the edges of the frailest enamel, and worked without the fear of chipping off the thinnest edge.

I have put fillings, built out to restore the coutour of the tooth, that have not been touched with any but the smooth point, to the severest test, to ascertain if the adhesion is perfect, and am fully satisfied that the adhesion of the gold is much more perfect than when the serrated points are used. The satisfaction that one experiences in working the gold with planishing points, is calculated to entirely relieve the mind of anxiety in regard to the finish of the filling, or the fracture of the tooth. If the foil is too high in one place and too low in another, I planish it down and draw it towards the low place. If at any point the foil does not lay close to the edge of the cavity, instead of taking the risk of cracking the edge of the enamel with the instrument, by wedging in a small piece of gold, commence back towards the center of the filling, and spread the gold in the direction desired.

In fact, the gold can be drawn or otherwise shaped, as one would shape a piece of metal with a smooth hammer upon an anvil. I have shaped a few instruments to enable me to more fully test this method of manipulating gold, and am so fully satisfied of its superiority over any other method, that I am willing to use none other than smooth points. I have filled cavities no larger than a pins head, with No. 60 foil, and then tried to pry it out, which I found could be done only by chipping it piece by piece. The gold seemed to be driven into all the inequalities of the cavity, even the smallest scratch of the excavator was filled. By using the magnifying glass, it seemed as though the gold was driven into the substance of the tooth itself. And I have filled large cavities which took an eighth ounce of gold, No. 60, with but a single instrument, in one-third less time than it would take by the use of serrated instruments.

I am satisfied hereafter to use no other points than smooth ones, and no foil lighter than No. 10, and as much heavier as I can get; but I believe No. 60 will answer for all practical purposes, as we can make it as heavy as desired by putting piece upon piece. The way I do that is to anneal each piece separately, and lay them together, and then anneal the whole mass. I observe in working foil in this manner that the instrument adheres to it, as though it had some sticky substance upon it. I do not know what produces this effect, unless it is electricity. It is not necessary to buy a new set of instruments to make the experiment of filling a tooth in this manner, you have only to take an excavator, and file the end off smooth and polish it well to make the trial, and then select an incisor that requires building out, which will present the most favorable case for the experiment.

I am satisfied after the first trial you will not abandon the planishing points, for the more you work gold with them, the greater will be your satisfaction and pleasure.

Proceedings of Societies.

NORTHERN OHIO DENTAL ASSOCIATION.

PUT-IN-BAY, May 2nd, 1871, 10 o'clock, A. M.

The association met according to the requirements of the Constitution.

Dr. J. E. Robinson, President, in the chair.

Meeting called to order. Minutes of previous meeting read and approved.

Members present: J. E. Robinson, B. F. Robinson, L. Buffett, C. Buffett, H. H. Newton, Cleveland; E. J. Waye, Sandusky; J. F. Siddall, Oberlin; C. B. Knowlton, Elyria; D. R. Jennings, Ravenna; Prof. Taft, Cincinnati, and several visitors.

The report of the Treasurer was referred to an Auditing Committee. Dr. Siddall appointed as Auditor.

Chair appointed as Examining Committee, Drs. L. Buffett, D. R. Jennings and B. F. Robinson.

Dr. Siddall appointed as Treasurer, *pro tem.*

Adjourned to 2 o'clock P. M.

AFTERNOON SESSION.

Meeting called to order by the President.

The Examining Committee presented and recommended the following persons for membership, viz: Dr. J. Stephan, Cleveland; Dr. R. R. Peebles, Cleveland; Dr. H. M. Ried, Sandusky; Dr. A F. Price, Fremont.

All of whom were duly elected by ballot.

DISCUSSIONS.

First—The benefits of a thorough Dental Education.

Dr. L. Buffett: In discussing a subject of so vital importance, the first inquiry should be, What constitutes a thorough Dental education? First, we should have a general knowledge of anatomy, physiology, medicine and surgery, that we may give our patients the benefit of our best skill. We should also have a knowledge of metallurgy and chemistry. Beyond this a dentist should be a good mechanic, and his mechanical powers should be so trained and educated, that his manipulative ability may be brought to great nicety and perfection.

Dr. Siddall: Regards our position before the public, is such that we should secure to ourselves a great degree of excellence, in order that the public may not be disappointed in us. We should rank with other professions.

Dr. J. E. Robinson: Feels the need of a more thorough dental education. The subject is of such importance that we should more thoroughly understand our calling, in order that we may give the people our best services, which they as recipients demand.

Dr. B. F. Robinson: Can not speak so definitely of the benefit of a thorough dental education, as of the want. Had been in the profession many years; commenced when the opportunities for acquiring a dental education were not as now, but still saw the necessities of it more than ever before.

Dr. Knowlton: Anatomy and physiology should be thoroughly understood by every dentist, if he wishes to confer the best benefit upon his patients. The people demand at his hand a thorough knowledge of his profession.

Dr. C. Buffett: The moral worth and honesty of a dentist is of the greatest importance. If a man is conscientious he will do good work, and not pretend he can do a thing unless he can do it thoroughly.

Dr. Peebles: The best time to obtain a dental education is before we have much practice. He was trying to profit by the experience of others, as well as by all cases that are presented in his daily practice, feeling deeply that our patients require at our hands our best knowledge and ability.

Dr. Ried: Our greatest need is a more thorough knowledge of our text books, which pertain to the various branches.

Dr. Waye: A man of the present day does not know the advantages he has over one of twenty-five years ago. The student of to-day has a fine chance for a thorough college course, which is of incalculable value to him in future practice.

Second—The proper Treatment of Children's Teeth.

Dr. L. Buffett: The profession are divided on the subject of the eruption of children's teeth. The cause of the suffering of children with their teeth, is the want of a proper nutrition. We, as dentists, have much to investigate in regard to the management of children's teeth. We should educate the people, especially mothers, to the idea that their children should have the kind of food that contain a proper amount of *lime*, to make strong and healthy bone. They should learn that candies, sweetmeats, etc., can not be eaten without harm. It belongs to the dentist to look into this subject and ascertain the wants of the child. On the subject of filling children's teeth, would use a non-conductor, (Hill's Stopping.) and if it should wear out, refill.

Dr. Waye: Has many doubts what to do in severe cases of inflammation. Has made attempts to fill the roots of children's teeth, but has failed. Is of the opinion that the temporary teeth should be filled and retained as long as possible.

Dr. Peebles: On the subject of severe inflammation, would use the lance, had found it an instantaneous relief. It was his opinion that it was better to lose a permanent tooth, than a temporary one prematurely.

Dr. J. E. Robinson: His method of treatment for exposed pulps in children's teeth, is to apply arsenic and creosote in very minute doses, then remove the dead nerve and fill, and retain them as long as possible. Considers the retention of the temporary teeth as long as nature requires, as of the utmost importance. They should never be extracted unless in cases of extreme suffering.

Dr. Taft: On exposure of dental pulp, would paliate rather than destroy, but would not use arsenic, but alum in sulph. ether with cotton, (a fine treatment in some cases,) then fills the cavities with Hill's Stopping; sometimes covers the pulp with collodion, and then fills with os-artificial. When the pulp is found dead, removes the debris. Very great care should be maintained to preserve the deciduous teeth. The roots should not be filled with any hard material. The retention of the ulcerated teeth depends upon circumstances. If the inflammation can not be subdued, extract them. There are many irregularities made by the premature extraction of the deciduous teeth, which causes a contraction, or prevents the proper expansion of the jaw to accommodate the permanent teeth. One very important thing parents should understand is, the proper use of these teeth in masticating food, and keeping them clean. Hard food is better than soft, as it gives the teeth something to do. Would fill the teeth with whatever material would preserve them best. (Dr. Taft in answer to a question.) Could see no evil results in lancing the gum in severe inflammation, but much good.

Third—Diseases of the Gums and Alveolar Processes.

Dr. Taft: When the functions of the mucous membrane upon the gums have so changed as to act injuriously upon the dentine at the necks of teeth, great sensitiveness, occurs, and ultimately decay. The cause of such a condition is a change in the mucous follicles of the gums.

Dr. L. Buffett: There must be an irritated condition of the gums. Is it a local trouble, or is it some difficulty of the system, which produces an acid condition and causes decay?

Dr. Taft: The irritation of the mouth is a very serious difficulty in the wearing of dental plates, especially rubber and pyroxilyn, in many cases effecting the system injuriously. The majority, however, can wear gold plates without any serious objection.

Adjourned until to-morrow, 8½ o'clock A. M.

SECOND DAY.

The convention met according to adjournment.

The Auditor's report was received and adopted.

Dr. J. E. Robinson remarked that he had at first found considerable difficulty in the use of the rubber dam. It producing severe inflammation about the necks of the teeth, in forcing it down to its place, but had now in a manner overcome it.

Dr. Taft: Used the rubber dam, but had no cases of severe inflammation from its use. He could perceive how the rubber and ligature might impinge upon the neck of the tooth, so hard as to induce inflammatory action. Would use iodine after the operation as a remedy to counteract this inflammation.

Dr. L. Buffett: Would like some light upon the subject of necrosis before and after extracting. Had one case of two years standing of the inferior maxillary. Cut away the loose pieces which resulted in a cure.

Dr. Price: Related an interesting case of ulceration and necrosis of the inferior maxillary, which by removing the tooth and probing the parts, the necrosed bone is in the process of being exfoliated. The pain has ceased and a cure is indicated. The patient has a scrofulous indication.

Dr. Taft: In cases of necrosis, a good remedy is sulphuric acid, applied once in two days, directly to the bone, using care in its application not to touch the soft parts with the acid. Has used it in several cases with very good results. Was first suggested to him by Dr. Atkinson.

Dr. Jennings: In cases of a diseased condition of the margins of the gums, sulphate of zinc is a very good remedy applied carefully to the parts effected.

10 o'clock; A M.

The time had now arrived for the election of officers for the ensuing year, which resulted as follows:

President—E. J. Waye.

Vice President—J. F. Siddall.

Recording Secretary—H. H. Newton.

Corresponding Secretary—J. E. Robinson.

Treasurer—C. Buffett.

Examining Committee—B. F. Robinson, D. R. Jennings, W. P. Horton.

Delegates to American Dental Association—L. Buffett, E. J. Waye, D R. Jennings, B. F. Robinson, R. R. Peebles, C. Buffett, C. R. Butler.

Dr. E J. Waye, was conducted to the chair, and thanked the association for the honor conferred upon him in his election as their presiding officer, and would endeavor to discharge its duties for the welfare and progress of the dental profession.

Dr. J. E. Robinson, (the retiring President) then gave a very interesting address upon the progress of dental science, and importance to humanity, and wishing us God speed in all of our laudable undertakings.

On motion, the Committee on Dental Ethics was dissolved.

Resolution offered by Dr. B. F Robinson, That article 9 of the Constitution, be amended by striking out the word *first* Tuesday of May, and inserting the *last* Tuesday of May. Carried.

On motion, it was resolved to meet on the last Tuesday of May, 1872, at Put-in-Bay.

Fourth—Heavy Foils and Heavy Mallets.

Dr. J E. Robinson: Uses a lead mallet of 3½ ounces, likes it better than any he has used. He is of the opinion that heavy foil can be more closely packed into a tooth than light foil.

Dr. L. Buffett: Has used both heavy and light foil; was of the opinion that the light foil was more safe in frail teeth, and more readily adapted to the walls than the heavy numbers. We should always use our best judgment, and select that foil which is best adapted to the case in hand.

Dr. Jennings: Likes the heavy foils, 30 and 60 in small cavities in front teeth.

Dr. Newton: Has used Nos. 4 and 6 mostly, and his experience is, that they are more readily adapted to the walls of small cavities, than the heavier numbers. Has used Nos. 20 and 30 to some extent on the surface of large fillings with satisfactory results. Uses a 4 ounce iron mallet, and prefers it to any other he has used.

Dr. Taft: Let every dentist use his best judgment in operating, so he may accomplish the best results to himself and patients. Has used many kinds of mallets, and finds that different patients like different mallets. In the use of the mallet, we should strike squarely upon the end. It is well for us to study the philosophy of the subject. The use of heavy foil in building up and overlapping the thin edge of a tooth, is of great value, and should always be done so as to perfectly protect and prevent the walls of the tooth from breaking down in the process of mastication. There are many cases that fail entirely from this cause alone. In filling small cavities he uses magnifying eye glasses, and finds them a very great advantage in preparing cavities, and recommends their use, that we may better perform our work. No injury can result to the eyes from their use.

Adjourned, to meet at Put-in-Bay, on the last Tuesday of May, 1872.

H. H. Newton, *Rec. Sec.*

Editor Dental Register: Noticing in the late proceedings of the Ohio Dental Society, that the influence of malaria was referred to, suggested to the writer that it might prove acceptable to offer a few observations made while in a miasmatic region. During five years practice as dentist in that highly malarious district, comprising in part a portion of the lower Wabash valley; experience led me to believe that tumors seen on the gums of patients, were of a benign rather than of a malignant nature. I can recall to mind but two cases during that time, where the tumor was marked by unusual size, rapidity of growth, or from the presence of which, the general health was seemingly disturbed. One vexatious trouble met with was, a lengthening and thickening of the gums after extraction of teeth, at such time the edges presenting a plump and glazed appearance. There being no complaint of derangement of the functions, local treatment was recommended which was followed in a majority of cases, by a partial absorption of the substance only. A neighboring dentist, who had himself experienced like trouble in his practice, attributed the cause to malaria; he recommending as treatment, purgatives, followed by bark tonics, "in some cases the result was satisfactory." I thought then, and believe now, that the true cause was traceable to the depraved state of the system. In the more unfavorable parts of the above locality, a majority of the inhabitants seem more or less tainted with scrofula—in connection with which we find quinsy, chronic enlargement of the cervical glands, and the appearance of simple white ulcers on the tongue. Patent nostrums, traveling quacks, and old women's cures are patronized extensively, while the advice and treatment of the physician is too often ignored. In conclusion, I would say, that what appeared to me strange, was that in a locality where above all others, excitent cause would seem to exist, and where the dentist would naturally look for tumors to assume a malignant form, we should find instead, those of a benign nature. J.

Editorial.

THE PHYSIOLOGY OF THOUGHT.

The mere title is startling. What do we know about thought itself, to say nothing of its physiology? And yet, mental philosophers make most of their failures through lack of attention to the physiological bearings of the subject.

In a well written article in this number of the REGISTER, the common sentiment is reasserted, in substance, that great thoughts emanate only from men physically strong. "A sound mind in a sound body" has a beautiful sound. For the ordinary purposes of society, such a man is very desirable; and it is best when such constitute the great majority of any community. But it is not from such men that the thoughts which move the world are obtained. Society is mainly molded, modified, controlled, by men far different.

A sound body assimilates carbon, hydrogen, nitrogen, oxygen, phosphorus, etc., in such proportion as to give uniformity of power to vital action. He holds a place similar to that of the general-purpose horse at the agricultural fair. If we raise but one style of horse, this is the one we want. But we must not expect him to run like an Arab, or draw the load of the Norman. So our general-purpose man is the best, if we must have but one; and if men were designed for hermits, it would be unwise to rear any other kind; but with man made for society, it is possibly better to have some variations.

A constitution which readily assimilates carbon, hydrogen and nitrogen, may give wonderful manifestations of what we usually call physical strength, provided it also appropriates enough of the other essential elements to keep up a reasonable balance; but it is not common for such to manifest great depth of thought. On the other hand, there may be a lack of ability to properly assimilate these elements. with an extraordinary power to appropriate phosphorus. Such a constitution will, if not greatly unbalanced, show great mental power, with a corresponding lack of physical force and energy. Who can not recall the memory of his schoolboy days, when the hero of the play-ground and the pet of the class-room were very different boys.

In all departments of society, unbalanced constitutions do the deepest thinking. Not that all such are good thinkers; but only those who overbuild the nervous tissue, by assimilating phosphorus, etc., till the muscular and secretory systems are over-topped.

Notable examples might be referred to: Among poets, Milton, blind; Hood, organic disease of heart, lungs, with nearly constant rheumatism; Cowper—too sad to tell all his ills; Pope, Kirke White. In the linguistic lore, what writer of English fails to feel the force of Lindley Murray, an invalid, bedfast for forty years,—all his writing done in bed. Did John Calvin, the invalid, make himself felt in the religious sentiment of the world? Scott, the cripple, wrote good poetry and readable novels. James Watt, the victim of neuralgia and sick-headache, made fair steam engines. Dr. Kane, traveling for his health, widened the field of knowledge. "Stonewall" Jackson, the sickly professor, was something of a fighter. Alex. Stevens, not strong enough to draw his last breath, but will die with an expiration, possesses some legal lore. Thad. Stevens, the scrofulous cripple, was something of a statesman.

But the time would fail me to tell of Johnson, of Webster, of Harvey, of Wilson, of Esop, of Cartright, of Prentiss, and others, whose thoughts we cherish as household jewels. Suffice it to say that in our own profession, for a dozen years at least, the leaders of thought, and the advance guard of professional progress, have been men with badly balanced and defective constitutions. When the physiology of thought is understood, this is not strange—not more strange than that the English racer can outrun the roadster. W.

DENTAL ORGANIZATION IN KANSAS.

A State Dental Society was organized May 2nd, 1871, in Lawrence, Kansas, through the instrumentality of Dr. W. H. Marvin, of Topeka, in that State. There were present Dr. J. H. Sawyer, Atchison; Dr. E. C. Fuller, Fort Scott; Dr A. M. Callahan, Topeka, and Drs. J. B. Wheeler, and J. D. Patterson, of Lawrence. The permanent organization was had as follows: President, Dr. J. B. Wheeler; Vice President, Dr. W. H. Marvin; Recording Secretary, Dr. J. D. Patterson; Corresponding Secretary, Dr. E. C. Fuller; Treasurer, Dr. J. H. Sawyer, under the name and title of the Kansas State Dental Society.

The code of ethics of the American Dental Society was adopted, and a constitution and by-laws were also adopted in harmony with those of standard societies in other States.

Dr. Fuller was elected delegate to the American Dental Association for 1871. A vote of thanks was tendered Dr. Marvin for his efforts in behalf of the organization.

The first semi-annual meeting was set for September 12th, 1871, at Topeka, and the annual meeting at Atchison, May 2nd, 1872.

A general discussion was had on subjects interesting to the profession, and the members were highly gratified with the inaugural movement to place the profession in the State of Kansas on a solid basis, in uniformity with other and older States.

A cordial invitation was extended to dentists throughout the State for co-operation, and the new society adjourned, to meet September 12th.

SURGERY THAT IS SURGERY.

In the June number of the Dental *Cosmos*, page 313, a dentist is represented as saying he "extracts the first molars when the second come in;" but we are not told whether he extracts the second, when the third make their appearance, or whether he extracts the central incisors when the lateral "come in." It is a pity we have not a full report on all these things; but probably space would not permit.

Now, it is not strange, that a man who, in the name of science, mutilates the human body, which our Father in Heaven has so "fearfully and wonderfully made," speaks "of the defects of approximal fillings at the base, and considered it" (what?) "as probably due to soft foil. In such cases, cuts out the softened portions, and fills with amalgam, leaving the firm part of the gold standing: thought not the slightest harm could come from putting gold and amalgam in contact."

It is wicked to swear, and impolite to scold; and so we can not do justice to the subject. Of the man who holds such sentiments we have nothing to say. We don't know him. Of the sentiments, it may be said, that if our profession can rise with such dead weights attached, it has a most marvelous force of character. W.

THE PNEUMATIC ENGINE-IMPROVEMENT.

We have been using Green's Pneumatic Bur Engine in our practice for about a year and a half, and can speak of its merits with a considerable degree of confidence. Up to about four months ago we used it as it was first presented to the profession, and had become so attached to it that we would sooner have given up any other instrument in use than this. We turned to it as the finishing instrument in almost every operation of filling, and because of its rapid and efficient execution. The work it performs can be better and easier done in one-third the time, than by any other method. It is invaluable also for excavating and forming cavities preparatory to filling, a large proportion of this work we now do with this machine, and here, as in finishing, because it does the work so well and so rapidly.

The instrument with its file carrier—substituting a slip of wood for the file—is equally valuable for cleaning teeth—and here, too, for its rapidity and efficiency. The instrument is valuable in so many respects, that we can not detail them all here. The only objection to the instrument that has at any time been suggested, was its want of power; within the last four months this objection has been wholly removed by a simple change in its gearing, so that now it has all the power that any one could wish for operations upon the teeth; indeed, with the power the instrument now has, care must be exercised, especially by beginners, lest injury be done to the tooth or filling upon which it is brought to bear; an ordinary tooth could be all cut away in a few moments with it.

An improvement has also been made in the cut of the Burs, giving to them more than double their former cutting power. In all the uses to which this instrument is applied, the first thing to be guarded by the beginner, is over execution. No dentist can afford to be without this machine. T.

"INSANITY IN WOMEN."

"BY H. R. STORER, M. D."

This valuable work presents itself in such a concise form, that even in this day of multiplicity of good books, one is well paid for its careful perusal. A treatise on this subject, giving the experience and convictions of so eminent a person as the author, is truly welcome.

The object of the work is to prove that a large proportion of cases of insanity in women is of a reflex nature, arising from diseases of the pelvic organs; and having proved this, to indicate the only rational mode of treatment.

He corroborates his views by giving the testimony of prominent psychological experts, so that much exceedingly valuable information is given.

His proposed treatment is not the one usually followed, and we would call particular attention to the fact, that on pages two hundred and thirteen and fourteen, there is an overwhelming argument in favor of having a *woman* physician placed in charge of the female wards in all insane asylums.

A thought, that made a deep impression during the perusal of this work, is this: If disease of the pelvic organs in woman, causes even insanity, why could not some influences be set at work, that would result in women so living and dressing that those parts could be maintained in a state of health. That this can be done, with woman's present skirts and waists, is utterly impossible. It is safe to assert, that no one who has worn them, can have all the internal parts in a perfectly normal state. Soft organs will succumb to constant pressure, even though it is but slight.

We object entirely to the idea that woman is even delicate on account of her sex. She is naturally very strong, or how could the race be continued.

One point of interest in this work, is that it gives evidence in favor of the natural powers of endurance possessed by women. Her greater tenacity of life shows itself even when disease has such a firm hold of her body as to dethrone reason.

He says, "the relative mortality of insane women is less than of insane men." He also states that Legoyt attributes this difference to "the greater vitality" of the female sex.

Out of this "greater vitality" surely something better ought to be developed, than the weak backed women of to-day.

That person who, by some maneuver, shall make fashionable a costume for woman, that would leave her body as free from weight and pressure, as a man's body is in his costume, would confer a greater boon on the race than the discovery of chloroform. It would save half the race from backache, nip a host of evils in the bud, and succeeding generations would have cause for infinite gratitude.

In the meantime, however, while the constitution of woman is being steadily undermined, thanks are due to Dr. Storer for calling attention to the most alarming of all results of disease of the pelvic organs, and for doing all in his power to alleviate distress. C.

THE

DENTAL REGISTER.

VOL. XXV.] AUGUST, 1871. [No. 8.

Communications.

INDICATIONS FOR EXTRACTION OF THE TEETH.

BY J. F. JOHNSTON, D. D. S., INDIANAPOLIS.

Read before the Indiana State Dental Association, at Fort Wayne, June 27, 1871.

The Executive Committee have proposed this question: "What are the conditions of a tooth which will justify its extraction?"

In this paper we purpose to discuss this subject as though the question had been worded thus: What are the conditions which will justify the extraction of a tooth?

We are all aware that certain conditions other than the immediate disease of a tooth, often renders extraction not only justifiable, but absolutely necessary. Not being able to see how an intelligent system of treatment of a diseased tooth, frequently complicated with an inflamed condition of the surrounding tissues, and not infrequently in the case of females, aching in sympathy with some abnormal condition of the uterine organs, or in cases of pregnancy, can be pursued, without carefully studying the condition of the patient—taking *at least*, all the parts *involved* under consideration. We shall take the privilege of giving ourself such latitude in its investigation, as in our judgment a profitable examination of the question may require. To simply discuss how much of the substance of a tooth may be wasted and destroyed by decay, and yet be restored to near its original proportions under the skillful manipulations of the dentist, or per contra, how much of it must be gone before the remains may be justifiably taken away, would not in our opinion come up to the expectations nor meet the desire of the authors of this question. To follow it up then, and examine its other phases of disease, besides simply caries, we must go further than the original question would indicate.

As is well known, the older authors and practitioners of their day advocated the extraction of teeth for what would now be considered very trifling and entirely insufficient causes. On looking back at the condition of our profession in their day, we can but rejoice at the progress we have made in the cure, as well as prevention of disease. The medical profession, ennobled for its good works, and usually ever on the alert to save from disease, have been singularly careless in their observation of the teeth. Even in our day, they have been in the habit of extracting teeth without questioning, for almost any trifling ailment, using many times but little care, frequently removing the wrong tooth,—all this owing to the fact, that the proper *value* had not been placed upon them; but now, they too, we are pleased to note, with comparatively few exceptions, are alive to the importance of preserving the teeth, and advise accordingly.

Leonard Kœcker, in his work, the "Principles of Dental Surgery," (from the perusal of which by the way, the reader will infer the author lived on very good terms with himself, but who has, nevertheless, said many good things,) represented perhaps very nearly the status of dentistry both in this country and in England, about fifty years ago. Whilst extraction is spoken of by him as *the* treatment ordinarily for teeth in which the pulp is exposed, and in cases of simple alveolar abscess, it is yet quite gratifying to learn that he successfully treated cases where the nerve *was* exposed, and also other morbid conditions. But his modesty did not prevent him from representing himself as an advanced practitioner of that time, and no doubt he was. It will perhaps not be uninteresting to extract an item from case No. XVI, in the treatment of a young lady's teeth in the year 1818, which will tend to give us an idea of the state of our profession about that time—there is nothing extraordinary in the extract, it is merely the *fact* we wish to note—he says: "The caries was extirpated in two places, and the cavities were filled with gold, after the lining membrane of one which had become exposed, had been properly treated." Indeed, the successful treatment of the exposed nerve is frequently spoken of by him, but we regret to say the mode of treatment is not given, we are left in the dark as to whether the nerve was destroyed or saved. His work being intended as much for the general as professional reader, is perhaps the cause of this omission, though the dental profession of that day do not appear to have been *anxious* to communicate or make public their treatment of cases. It is gratifying, however, to know that they were extending their researches and making successful efforts to save a class of teeth, that had been so generally sacrificed. It also leads us to think that our progress in this direction, though very commendable, has not been so marvelously rapid, as we are often led to believe.

The late Chapin A. Harris, assigns among many other indications for the extraction of teeth, familiar to all of you, and the most of which we can indorse, the following from which we as a rule must dissent: "A constant discharge of feted matter through a carious opening in the crown from the nerve cavity, and from the canal of the root of a tooth." Also, "a tooth which is the cause of abscess in its alveolus, should not, as a *general rule*, be permitted to remain in the mouth." We, in this day, as a *rule*, believe in the successful treatment and preservation of such teeth. Professor Taft, in his excellent work on "Operative Dentistry," says: "Alveolar abscess, terminating on the outside of the face, or tending to it, *always* indicates the removal of the offending tooth," also, "ulceration of the investing membrane clearly points to extraction as the remedy." We agree with him fully and unreservedly in the first and last instances, and in the second also, unless it be found that by timely lancing inside the mouth, and the introduction of a rope of cotton or other suitable material into the opening thus made, the abscess may be drained of its contents and the parts restored to health. The tooth being treated for filling, as in other cases of alveolar abscess. Failing to accomplish this, of course, the tooth should be extracted in time to prevent its causing a disgusting ulcer upon the outer surface of the cheek; leaving an unsightly scar after the operation of removal has taken place, which must inevitably precede a cure sooner or later.

Tomes, in his admirable work, would seem to regard extraction as justifiable in several cases in which many of our more ardent and enthusiastic practitioners would not perhaps acquiesce, as for instance, in acute inflammation of the dental pulp, while stating that it is susceptible of successful treatment. Yet he says, "but should it be found that the pulp of the tooth is passing into a state of disorganization," etc., etc., the removal of the tooth offers the only certain and speedy means of terminating the disease, and in polypus of the pulp "preservative treatment, says he, will fail, owing to a coincident enlargement of the aperture at the extremity of the root, and to a morbid condition of the vessels and other tissues to which that aperture gives passage, and again in thickening of the periosteum, "this bulbous state of the dental membrane," (often termed fungous,) is occasionally found in connection with dental exostosis, and sometimes with necrosis, but in the latter case, the disease is disposed to become active, and to end in alveolar abscess, there is but one method of treatment—the affected tooth should be removed." In the last named conditions our judgment and experience leads us to fully concur with the distinguished author. On our part, it is perhaps hardly necessary to add that extraction to correct certain cases of irregularity, to treat other diseased parts, as the antrum, necrosis of the jaw, or alveolus, etc., etc., would be justifiable, as this is the acknowledged remedy in such cases, being fully indorsed by all authors upon this subject. But there is a class of teeth we would especially direct attention to. We allude to the first, commonly called the sixth year molars. These teeth, as Professor Taft has shown in his tabular statement of the relative decay of the teeth—as exhibited in one thousand cases—see page 63, Operative Dentistry, are far more liable to decay than any others, the per centage being 37 to only 10½ in the third molars. In speaking of them, he says, "the first molars are much more liable to decay than any other teeth, since they are less perfectly developed than those formed at a later period of life." We all know from actual experience and observation, that this is literally true. This fact being established, would it not be sound sense and consequently good practice, to direct our efforts to the more perfect development of the third molars? We think it would; and with this end in view, we think that when a case is presented for treatment, if the first molars are found in a much crowded jaw, imperfectly formed, soft and decayed, upon each proximal surface, or softening and decaying in grooves near the margin of the gums, either on the buccal surface, which is most frequent, or on the lingual surface as sometimes happens; when this condition exists nearly as described, or they show other clear indications of rapid decay, in which all the first molars are more or less involved, that it would be far better for the future comfort and health of the patient, if they were removed—relieving thereby the lateral pressure upon the other over crowded teeth, which can afterwards be more perfectly cleansed, and providing room for the future development of the *dentes sapientiæ*, which we may reasonably hope and expect, owing to the patient's better care of the teeth usual at that age, and consequent improved physical condition, will come in, well formed, in good position, and with reasonable care, perform an useful part in the mastication of food for many years, and perhaps the life of the patient—thus, far more than compensating for the loss of the already carious first molars that have been extracted. Under such circumstances, the loss of these teeth would not be observed, nor the symmetry of the mouth impaired, but on the contrary, in many instances improved. In such emergencies, nature would seem to be putting forth her best efforts in the development of the *dentes sapientiæ*, to meet, we could fancy, an anticipated deficiency in the jaws at that time, for without the removal of the first molars, there is seldom sufficient room for the perfect development of the third.

But, gentlemen, so much has been said of late years denunciatory and condemnatory of those who extract teeth for almost any cause, and so many practitioners have expressed themselves as having suffered so much mental anguish from their torturing consciences, visions of slaughtered teeth, like Banquo's ghost ever rising up before them, that it requires a little courage to advocate extraction under almost any circumstances. So inclined we are, it appears to us, to run into extremes, that the result has been that thousands of old, offensive, irritating, worthless snags, have been patched up, with all sorts of amalgams and other vile compounds, resulting in injury to the other teeth and gums, if not to the general health, and which of course, ought to have been promptly extracted. This is the misfortune of following too much the single idea, as the dentist? (if we may call him one) does, who extracts everything to make way for his beautiful artificial teeth; and not going thoughtfully far enough into the investigation of each case, or else following blindly as we fear many do, the teachings of some dental luminary, their beau ideal. We have observed of late years, many mouths in which the condition just referred to existed, that would have been in a much more healthy, comfortable, and useful state, if some of the teeth had been removed. In such cases especially, a sound, enlightened judgment is required. Here it is that something in addition to and more than mere manipulative skill is needed. Of this class of cases, the attempted preservation of the first molars under disadvantageous circumstances, are most frequently met with. We conceive it to be quite impossible, however, to describe so accurately any condition of a tooth, that may serve as an undeviating rule in all cases. Often a tooth that appears well worth an effort to save, owing to the condition of its neighbors, the surrounding soft tissues, the age or peculiar idiosyncracy of the patient, it will be found best to remove. As stated at the outset, we have not attempted in this paper to describe just those conditions that would render extraction absolutely necessary, as viewed by the light we possess, for this, as before intimated, must ever remain a matter of intelligent judgment with each individual operator. Nor have we attempted to describe how much diseased a tooth may be and yet be saved, because this also depends not only upon so many contingencies, but very much upon the manipulative and medical skill in the treatment, as well as the capacity to determine its *real* condition. Cases appearing to one hopeless, which to another of better parts are comparatively easily managed. We have preferred to speak of those general conditions of a class of teeth that, as a rule, to which there are exceptions—we thought it would be better to extract than attempt to save. We trust we shall not be understood as saying one word in disparagement of conservative dentistry; for we feel satisfied that no one can entertain a more profound contempt and utter loathing of that class, who sacrifice needlessly and remorselessly the natural teeth—either from motives of cupidity, ignorance, or careless indifference. Yet, we are free to say, that the great desire to save all teeth, almost without regard to their condition and the other parts immediately or remotely involved, though a noble aspiration on the part of the dendist, is yet a piece of enthusiasm that is in many instances carried farther than a more deliberate judgment, and future results would warrant. But at the risk of repetition, we will add, that the utmost we can do is to use our best judgment conscientiously, and in forming our opinion of a case, as for or against extraction, the age, the habits and moral and mental condition of the patient, should receive our consideration. The removal of a tooth should always be regarded as too serious a matter to be done hastily, unthinkingly, and without careful investigation. The patient's condition may be such as to render the operation one of great danger, and in such a condition, extraction should not be attempted, although appearing otherwise necessary, unless the danger to the patient would seem to be less in removing, than allowing the offending tooth for the present to remain.

In conclusion, having shown that the question is one that can not be definitely answered when so much depends upon the varying ability of the dentist, and the ever varying conditions of our patients, constitutionally, educationally, and it would perhaps not be out of place to add pecuniarily—for disguise it as you may, money has much to do in the successful treatment of disease—our best dentists not usually being the lowest in their fees, it will be seen that it procures the best talent, consequently the best remedies; provides the means of absolute rest and careful nursing, which is often indispensable to the treatment of a diseased tooth. These things can not be indulged in by the poor laboring man or woman. We are sorry for them—their lot is hard, but it is so. Even if the dentist was willing to give his services in such cases, (which frequently would be a greater sacrifice than he could afford to make,) such patients, could not afford to lose their time. Relief quick and decided, is what they want even at the sacrifice of the tooth, and it does not hurt our conscience to afford it in that way to this class, taking their habits and necessities into consideration, it is in our judgment the best service we can render them, and consequently, justifiable practice.

We can not conclude this paper in better words than those uttered by that eminent old pioneer teacher, the late Chapin A. Harris:

"Whenever a tooth can be restored to health, it should always be done, but tampering with such as can not be rendered healthy and useful, and which by remaining in the mouth, exert a deleterious influence, not only upon the adjacent parts, but also upon the general health, can not be too strongly deprecated."

DENTAL JOTTINGS.

BY H. L. SAGE.

Outward Inclination of a Lateral Incisor.

Miss B., age 34; temperament sanguinous; teeth dense, yellowish-white, and rather long than short, called to consult in regard to the right superior lateral incisor, which from some cause not apparent, had within the previous year, changed position, having been forced outward, *i. e.* beyond the labial surfaces of the adjoining teeth, until its cutting edge had deviated one-quarter of an inch from a line with its neighbors. The movement was not in a vertical but in a horizontal direction. It had not at all elongated—was very firm, sound, natural in color, and well-formed. All of the other teeth were firm, regular and in good condition, in a well-developed arch, and the gums perfectly healthy. The first right superior molar was an exception—being quite loose and nearly ready to fall out, from the presence of tartar.

The gum in front of the displaced incisor, had not lost its attachment, and was also healthy.

On the cervico lingual portion of the tooth, was a slight deposit of tartar, and the connection with the gum was lost for about one-sixteenth of an inch, but the latter had not shortened or perceptibly receded. Over the end of the root, on the labial surface, some absorption of the alveolar process, had seemingly taken place, with a consequent falling in.

Was the absorption produced by the displacement of the tooth, or the displacement by the absorption?

Was the small deposit of tartar, and the slight loss of connection of tooth with gum, sufficient to cause the outward movement?

It was not forced outward by its antagonizing tooth, for the occlusion was such as to render such an event impossible. Neither does the slight loss of connection with the lingual portion of the gum, seem to be a sufficient cause.

Had the tooth been moved back to its original position, would it have become firm again at that age—34?—for though it was firm at the time, and probably had remained so during this *natural* process, a mechanical pressure would have loosened it.

Perhaps some may have fallen in with cases of a like nature, but I have seen nothing similar without a cause more apparent. What caused this outward movement (inclination) of the tooth, one-quarter of an inch, within so short a period, with no want of room, and all of the adjoining teeth and gums in a normal condition, let wiser ones determine. It must not be classed with cases so commonly met with, of teeth which become loose, elongate, and finally fall out.

Unequal Development of the two Halves of the Body.

Having seen in the "*Cosmos*" for February 1871, among the selected articles, one entitled "Assymmetry of the two Halves of the Body," in which the writer speaks of the rarity of such cases, having found but one such as he describes recorded, (although in a foot note, allusion is made by Dr. Z., to the report of a case in the *American Journal of Medical Science*, for January 1871). I am inclined to contribute the following:

Miss —., age 19, has an irregular denture, the under teeth shutting outside of the upper ones, in front and on the left side. Left superior eye tooth projects anteriorly for want of room in the arch. The superior bicuspids and molars of the left side incline inward, and shut inside of the outer cusps of the inferior antagonizing teeth. These left upper side teeth all need forcing outward, and the jaw expanding, not only to make room for the left cuspid to fall back into place, but that the teeth of the same side may antagonize properly. She was advised accordingly. The teeth of the right side shut together perfectly, and the jaw is larger and more symmetrical than on the opposite side. The patient states that she is deformed—that the right side of her face is the fullest and largest—also that her right hand, as well as all the members of that side of the body, are larger than those of the other side. A casual observer would not notice it, however.

I should call it a more perfect development of the right side of the body than of the left, including the jaws, while a want of full development of the left side, extends also to those members, causing the teeth of that side to present for the lack of this development, a crowded and irregular condition, and an imperfect antagonism.

NECROSIS OF THE LOWER JAWS.

BY D. W. CLANCEY, M. D., D. D. S.

A short time since, Mr. H , a young man of about twenty years of age, was directed to consult me in regard to his lower maxilla. He had lost the cuspid, central and lateral incisors, and the remaining central was quite loose, from what he supposed to be the effects of tartar. I made an appointment with him for the following morning, telling him what I supposed to be the trouble, and that it would be necessary for him to submit to an operation, to which he cheerfully consented, and was on hand to meet his engagement.

Upon close examination, I found it to be a well marked case of necrosis. The central incisor remaining could be moved quite easily, but gave a sense of crepitation to the touch. The extent of the lesion was from twelve to fourteen lines in length, commencing at the mental foramen and passing toward and by the symphysis, the sequestrum just visible in one or two places through the fleshy parts, and emitting a rather sanious discharge, making him exceedingly disagreeable, both to himself and his friends.

After assuring myself of the extent and condition of the case, I provided myself with a curved bistoury, pliers, and a pair of process forceps. Separating the soft parts on a line with the jaw, and grasping the dead bone with the forceps, it came away without any trouble, bringing the loose tooth with it, and with very little shock to the patient. By using alum water, the loss of blood was very slight.

The man's appearance aroused my suspicion that the necrosed bone was the result of a dyscrasia of the blood, so I made an examination of the entire dental arches, taking each tooth separately, and found the right central and lateral superior incisors, giving a very slight crepitation, and having a "numb feel," as the patient called it. In appearance the teeth seemed quite as healthy as their fellows on the opposite side; the gums over these teeth were not swollen to any appreciable amount, and only a little darker than the contiguous parts, and I found it difficult to convince him there was anything wrong, until I made pressure on the surface, and a slight discharge was emitted from under the free borders of the gum.

The wound left after removing the offensive mass; was dressed with a pellet of raw cotton, saturated in a weak solution of carbolic acid a few times, and it healed in a short time.

Patient admitted he had taken calomel in considerable quantities, but denied positively that he had been salivated when I explained the symptoms. However, I am inclined to regard it a case of mercurial necrosis, and though the affected portion of the superior maxilla was injected with elixor vitriol and iodine, and the gums with the internal use of nitric acid, with a hope of restoration, yet I am inclined to think that nature will throw off the affected portion of the bone by way of self-protection under any treatment, where the disease has made even the apparently slight advances that this case has.

While there is nothing very marked in this, that is not peculiar to necrosis in this situation, I have been induced to report it because I feel that contributors to our dental periodicals are painfully silent as to their experience in the management of diseases and injuries of the facial bones and contiguous parts. It may be claimed by some that when we go beyond the teeth, we overstep the bounds of our province as dental surgeons, and should turn our patient over to the physician and surgeon, who is expected to cope with every malady that flesh is heir to, no matter in what part of the body it occurs, thus giving our patient, his friends, (and the doctor, too, for that matter,) the impression that they are not to think of a dentist again, only in connection with a toothache. This view of the matter may be extreme, and I know is not the experience of some few, but to be candid, I would ask every member of the profession whose heart is for its true elevation, if this is not the tendency on the part of communities? Why is this? Why is it that as a general thing, the dental surgeon is so rarely consulted in those cases where any portion of the mouth, except the teeth, are involved, or in short, anything, that in the opinion of the patient, requires the services of a *surgeon?* Is it because it is tacitly understood that his knowledge of the human system is so *limited* and *superficial* that he has no just claim to the title of *surgeon*, but has appropriated and by common consent, used it to add weight and dignity to his own calling? If this is so, the blame rests with himself and his class, and no one else. Communities, like individuals, are what they are educated to be, and until the aspiration becomes more general on the part of the profession to do something more than "good jobs, good fits—work that will *stand*," etc., (all of which are quite essential so far as they go,) the dentist will not be called on so far as surgery goes, much beyond the extraction of a tooth, notwithstanding our dental colleges, hospital clinics, and dissecting.

I see no reason why the dentist should not stand on the same level with the physician in regard to surgery, if any difference, circumstances favor *him* rather than the latter. His superior skill in the use of instruments and his mechanical ingenuity alone would recommend his hand to be intrusted with the scalpel.

Some may contend that the study of the pathology of the dental tissues alone, to its utmost prosecution, is beyond the grasp of an ordinary mind. I would inquire of such, in what respect on general principles, does the phenomena of disease in this part of the economy differ from the whole, that the treatment should be a "law unto itself;" that the principles are not given in any standard text book on surgery, we may take up, to be carried out by an *enlightened* judgment.

If facts will not bear me out in this, then it may be inferred that the physician's and surgeon's diagnosis and prognosis of his cases, as they come up, can not but be unreliable, and thus life and health are in constant jeopardy all over the civilized world. I think that there are few, no matter how warmly they advocate the *exclusive* study of dentistry, that after mature consideration, would have the boldness to make such an assertion, and yet we must accept it in this light, if we adhere to the first proposition, or make an admission that would not be at all complimentary to us as a class. That is, that naturally in the main; we choose our specialty, because of a consciousness of our mental inferiority, and timorously pause on the threshold of medical and surgical science, doubting our capacity to enter in.

That as a class, the young men of the present, entering on the study of dentistry, are naturally inferior to those engaged in the study of medicine, I most emphatically deny, for if we take the trouble to visit the different medical schools throughout the country, and compare them with our dental schools, we will find the mental power of the student in each will average about the same. And as they both proceed from the college halls to their respective fields of labor, if the physician has placed in his hand a higher trust, it is because his studies anticipate that trust, and not from the inferiority of the man.

Dr. Homer Judd, of St. Louis, at the last annual session of the Missouri State Dental Association, made an assertion, that one half of those now engaged in the practice of dentistry througout the country, are "totally ignorant" of its commonest principles, and over half of the remainder are incapable of performing the simplest operations with benefit to their patients." This is not very flattering to men claiming to have a liberal profession, and yet, coming from the source it does we can hardly doubt its correctness.

I commenced these remarks on the hypothesis that every dentist should be a surgeon *par excellence*, and hold his place in the estimation of the public as such. A man that would be as capable of ligating an artery as he would be of adjusting the "dam" preparatory to filling, or of operating for stone in the bladder, as he would be of extracting a tooth. These attainments are available to all who have the ambition, and surely, he who would take upon himself the responsibilities of the grave profession of ministering to health and life of his suffering fellow creatures, ought to be susceptible of the very highest culture. The public will, in most cases, discriminate between such a one and the pretender, who learns his calling as a mere trade. That the latter belongs to much the largest class is evident, and the amount of prejudice to overcome in reaching a higher plane is proportionately great, is no reason why the man of science acquired by patient and continued investigation, should allow himself to be identified by his community with any scalawag, who happens to be prowling about, having made a shift at the business to get his bread and butter.

Perhaps some one of the readers of the REGISTER has a blessing or two of this kind in your neighborhood, in the shape of a "resident dentist," who "puts in nice teeth," and "knows all about it," and you are mortified occasionally by one of the Doctor's (?) "customers," (who has become convinced that he has been imposed upon,) who opens his mouth at you, and invites you to "take a look," the first time he meets you in a public place. When you remind him that he may consult you at your office, at his earliest convenience; that you have no desire and are not prepared to make an examination in such a place, he will say, "perhaps, that would be better, where is your shop?" Though you are chagrined over this little scene, you can not blame this person, he has just as high an estimation of dentistry as a profession, as he has of tailoring or shoemaking; it is a matter of education with him, and his conduct towards you is but the result of his impression of his former dentist, and not because he is inclined to be disrespectful to you.

It is true that dentistry has been very progressive within the last few years, and equally true that quackery has kept pace. Aye more! They have out-quacked quackery—they do it by steam (!) since the rubber dispensation.

How is all this to be changed? "That is the question." a practical solution of which would be hailed by many throughout the country with unbounded satisfaction. Now if we wish to lose our identity with those persons now engaged in mounting artificial teeth and boiling rubber, we can only find an exodus through a more liberal medical education, which is at our door, and leave them to higgle over and settle their prices between themselves. More anon.

DENTAL ETHICS.

BY E. M. MORRISON.

Read before the Indiana State Dental Association, at Fort Wayne, June 27th, 1871.

According to Dunglison, Bentham introduced the word deontology, to signify morals, or the science of duties.

Medical deontology defines the duties and rights of medical practitioners. The word *ethics*, however, has become generally in use in the place of deontology, and will be adhered to in this paper. Then dental ethics is a system of rules to regulate the actions, rights, manners, and duties of dental practitioners.

The subject is of much importance to the profession, but I fear that it has been too little observed by many of us, yet it is essential that our code of ethics be uniform, and well lived up to. To secure these ends, as far as possible, the American Dental Association has adopted a code of ethics, very good in its main features, and I am glad that it has been accepted by nearly all reputable dental societies of the United States.

Do we live according to the discipline? Do we practice according to the code? Do not some dentists encourage hopes of success, when in the nature of the case there is uncertainty? Are we temperate in all things? Do all of us feel bound at all times to maintain the honor and dignity of the profession? Do not some speak in disrespect of their brethren? Do we not see public advertisements, cards, handbills, posters and signs, calling attention to peculiar styles of work, lowness of prices, special modes of operating, and claiming superiority over neighboring practitioners? Do we not see published reports of cases, or certificates in public prints, and men going from house to house to solicit or perform operations, circulate and recommend nostrums? Finally, have not many of us seen nearly every provision of the code violated, by some who are yet members of respectable societies, and not raised our voices in condemnation?

All this is wrong. We should not hesitate to call in question the acts of any member of the profession, who makes a "*departure*" from the code, or violates the rules which all should observe.

To purge our societies of all those who violate the code, and play the part of the quack or montebank, would be as a refiner's fire, to purify and strengthen us in the eyes of an appreciating public.

Then, we should elevate our standard of ethics. Article III of our code, commences as follows: "Dental Surgery is a specialty in medicine," and it goes on to define the relations of the dentist and the general practitioner.

Now, if we could only realize the fact, that we are physicians in good standing, practicing our specialty, we would be elevated as a part of that profession. Dentistry, however, has not been so looked upon by medical men generally, and to our disgrace, they often employ the traveling tooth carpenter in their families in place of the man of science and skill. Physicians who could not be induced to violate the code in relation to the general practitioner, do not see dentists as part of their profession, simply because our code does not come up to the proper standard, and all dentists are seen upon the same low ground. When we come out of the mire and the bog, the general practitioner will see us as his equal. Our relations will be mutual, and our services to each other will be as medical men to medical men. We will then have the influence of the medical profession generally in the suppression of dental quackery, rather than in its support as now. If we are a part of the medical profession, we must come up to the standard of that profession in ethics and learning. If not, we should not make such pretensions, but be content with a code commensurate with our low estate.

There should be an article added to the code of ethics, to check the disgraceful lust for large profits from the profession, through the medium of patents.

In the code of ethics of the American Medical Association, we find the following section:

"Equally derogatory to professional character is it for a physician to hold a patent for any surgical instrument or medicine, or to dispense a secret nostrum, whether it be the composition or exclusive property of himself or others. For if such nostrum be of real efficacy, any concealment regarding it, is inconsistent with beneficence and professional liberty; and if mystery alone gives it value and importance, such craft implies either disgraceful ignorance or fraudulent avarice. It is also reprehensible, for physicians to give certificates attesting the efficiency of patent medicines, or in any way to promote the use of them."

This section should be incorporated into our code of ethics, with such verbal changes as to make it applicable.

Dr. J. P H. Brown, (Dental Register, vol. XXIII, pp. 12 and 13,) makes the following remarks, which are so well to the point that I copy them here:

"In the first place, dentistry is unquestionably as much a part of medicine as surgery. It is so considered by our first physicians and surgeons, and so proclaimed by our dental professors. Dentistry being a part of medicine, it necessarily follows that the same rules and etiquette which are laid down to govern the professional conduct of practitioners of medicine and surgery, should also govern the practitioners of dental science.

"As the medical profession owes its power, influence and skill, to the perfectly free interchange of ideas and opinions, it is held to be derogatory for one of its members to patent any remedy, appliance, or principle of its application. As each member draws from the common fund of knowledge—the accumulated discoveries of centuries—he is morally and professionally bound to contribute his portion, either small or great, to the common stock."

The same is true of our specialty, and in this respect we have recently one of the noblest examples, that of Dr. Barnum, with his coffer dam, any where to be found. All honor is due him for his good example, and great contribution to our profession. He has had the nerve to do right, and his good example should ever be a rebuke to patent mongers, who wish to fill their coffers at the expense of co-workers, and true progress.

In the DENTAL REGISTER, (vol. XXIII, p. 50,) in relation to a patented article, which the patentee wished to perfect before putting into the market, the Editor says: "We are not certain that this is the best course; if fifty or a hundred experimenters were at work, the progress most probably would be far more rapid; at least it has proved so with other things."

Why, then, have the progress of the profession checked for the benefit of one individual?

We can not afford to pay patentees for their patents to experiment with; neither can we experiment without paying for the privilege, so that a complete check is put upon the progress demanded by the exigencies of the times.

It is easy to see the drift of such a course. It will carry us down to the condition of mere mechanics. Even now, some have come down in their feelings, and look out from a mechanical stand point.

Dr. P. C. Branch, (*Dental Cosmos*, vol. XI, p. 76,) says: "Now I believe that a proper condition of things can only be restored by a change in the relations of these two branches of dentistry. Let us cease to regard mechanical dentistry as professional labor, and throw it open to competition like any other "trade," (if you will,) and then by employing mechanics at mechanics wages, underbid and drive the humbugs that are everywhere to be found, from the field, with the irresistible argument of "the cheapest and the best." Thus the mechanical department will come under the supervision of the professional; thus the professional in the exercise of good common sense, and enterprising business qualifications, can make the mechanical its willing servant, unable to exist without the oversight of its master."

It is difficult to see so clearly which would be the master, and which the obedient servant.

If mechanical dentistry is to come down to the level of a trade, I will abandon that part of my profession, for I hold that a profession can not be a mere trade in one of its departments, and make that department subservient to the other. A profession can not govern a trade any more than a trade can govern a profession. I can not contemplate such a separation, however, though we have been loaded down with patent after patent, and with quacks and charlatans, till they are legion. It is clear that the profession is progressive in its general bearing. While we feel the pressure of mechanical and patent degradation, and are mortified at the sight of flaming handbills and posters by the way side and in high places, we are at least keeping pace with the balance of mankind in the way of progress.

Dr. W. H. Trueman, (*Dental Cosmos*, vol. XI, p. 174,) says: "The advance in mechanical dentistry would no doubt have been more rapid than it has, if all the talent it has enlisted had been directed more to the discovery of new and the improvement of old ideas, and less to the rapid accumulation of wealth. Those practitioners who can take a retrospect of two decades placed side by side, can not have failed to observe how often its advance has been checked by those who have strength of body and mind to occupy the front ranks, desiring to be carried on the shoulders of their weaker brethren as a reward for some real or fancied advance they have made, nor yet can they fail to have noticed how often this ungenerous conduct has resulted in a fall so severe as to consign the unfortunate to a place among the limping and lame ever after."

Dr. Trueman was here speaking of the patent spring plate, and there can be no doubt of his allusion to patents and patentees.

Dr. John Allen has said the most foolish act of his life was in procuring a "patent for his continuous gum process," so I hope we will merge from the gorges, to which we have been dragged by avarice and patent mongers, and ascend to the hight demanded by our specialty.

Let there be thoroughly organized societies all over the country, working in unison, and every year will mark a progress so well established that no outside pressure can force a retrograde movement.

DENTISTRY IN BRAZIL, SOUTH AMERICA.

BY W. F. MORRILL.

Bead before the Indiana State Dental Society.

Gentlemen of the Indiana State Dental Association:—To-day, my absence from your meeting occasions me sincere regret. The social amenities and the scientific purposes are so happily blended in our gatherings, that not to be there, is seemingly to appear discourteous. Moreover, I am deprived of professional information—a matter of some moment to me. This absence will be, as if a leaf had been torn from a book—an interregnum in professional acquisition. And while I am not do-day permitted to share with you in the discussion of those topics pertinent to the welfare of dentistry, I trust another year I may be privileged to mingle with you where I have so many cherished remembrances. I herewith submit to your consideration observations connected with dental practice in Brazil.

It is known to some of you at least, that a disturbed condition of health made it necessary I should relinquish practice for a while, and repair to some more genial clime where the hygienic restoratives are supposed to reside. Brazil became the point of my destination. I reached the capital of this Empire on March 2nd, 1871, where I have since remained. The change derived from the effects of a sea-voyage, gave me my wonted vigor, and I soon after my arrival, entered upon dental practice. The city of Rio de Janeiro, with a population of 400,000, has more than 60 dentists. There are four American offices, while all others are either French or Brazilian. Two of these American offices would make a respectable standing among the offices of the United States. By this I mean to say the character of the operations done at these places will compare and be classed among the first in our country. With the occupants of the other two offices, I have had frequent opportunities to converse, and they each discouraged good operations, as the demand is for cheap and inexpensive kinds. As a N. Y. "Blood" in one of them told me he was a "slinger of amalgam," so I am permitted to adjudge his operations.

To open an office in Brazil for dental practice, where a sign can hang at the entrance on which is painted "Cirurgŭo dentistū;" a title from the Medical Faculty must be first secured. The applicant submits to a Medical Board for examination. Not one of these men comprising the Board comprehend a single principle of dentistry. Probably this Board might, if it was so disposed, conduct a *medical* examination of an applicant, but anything further than this, a like number of shoemakers would be equally as competent to decide upon the skill requisite to perform dental operations. Naturally enough, then, the law is a nullity. Brazil has its full quoto of dental quacks. A few paltry dollars placed in the hands of certain knowing ones, brings a "title" to the field of dentistry. Under the official seal of the Empire, a copy of the "title" runs thus:

"EMPIRE OF BRAZIL."

The Faculty of Medicine of Rio de Janeiro considering that Mr. —— ———, is a native of North America and the State of New Jersey, and a son of Mr. and Mrs. —— ———, was examined in dental art, ordered the passing of this title with which he will enjoy all the prerogatives the laws of this Empire, authorize those of his profession."

Subscribed by Medical Faculty and Secretary of the same.

The candidate thus panoplied can assail the public for dental patronage. Dental signs with letters of unmistakable size, stretching the entire length of the house, informing the public that the occupant is "dentist to the Imperial family," frequently greet the eye. If the Imperial family employ all of these men thus termed, then it is a most magnificent patron of dentistry.

Brazilians are usually blessed or cursed with lengthy names, and when "Cirurgŭon Dentistu" is added, the whole is startling. But when "Barbeiro" is super-added, as is sometimes the case, it becomes fairly frightful. And whether these two professions, so amicably twinned in Brazil, require an additional "title," other than the one already given as under the Imperial sanction is included, I am not informed. Quite likely a Board sits specially to grant licenses to barbers! College diplomas from the States have no weight toward influencing a title-grant.

A young man from the States of some promise in his dental qualifications, made application for a title to practice, was very unfairly denied by this Board. He went home, hung out his shingle with merely his name, and to-day commands a fine practice. The people know the value of his operations, and his prices are above any other operator in Rio. By law without this title he can not collect money; but he chooses a better way, and collects his money as the work each day progresses. At the close of the day he knows no bills are to be collected.

My acquaintance with Brazilian and French dentists in this city has been limited, but quite enough to form a just opinion of the nature and character of their operations, and also to form some judgment of their scientific attainments. The performances on the teeth are universally bad. Amalgam forms the chief material and in many offices the *only* material for filling teeth. You might as well talk to a "heathen Chinee," as to mention the subject of preserving the pulps of teeth. They never heard of such a thing. They know arseneous acid destroys teeth, and this accomplishment is their high mission and ambition. Little or no excavations of the cavity follows when it is filled, and in a short time afterwards the patient returns to the mourners bench where vile sinner is again punished by extermination. Two fees have been collected, and the patient now departs, with *exalted* conceptions of the dental art. Much of the work done by the better American operators is that of taking out and doing over what these unholy hands every day demolish. Nor does the mischief stop at their operations in this branch. In artificial teeth, the caricatures are still worse and more of them. At the doorways of their offices the specimens of dentures brought from Paris, and their own "begettings," are enough to astonish the most incredulous. The mere sight of them is enough to make a patient weep, as he passes up to the "bull ring of these slaughter pens."

But what must the ordeal be when a patient is compelled to wear one of these products? If the missionary field is in need of laborers, here in Brazil is the commencement of a mighty work.

Of the character and predisposition to caries of the teeth in Brazil, I may say no country can excel it. The teeth are darker color, and a turgid condition of gums quite common. The tooth substance possesses a brightness and a sensitiveness, unusual in the States. There appears much destitution of lime salts—a starved condition of the teeth, insomuch that little or nothing can be done, excepting to remove them. Taints of syphilas prevail to no small extent throughout the Empire. Add to these the depressing influence of climate, humid and hot, with diet farinaceous and fruits, and the vital economy is slow and sluggish to respond to therapeutic agents. Very little certainty can be placed on remedial agents. Medicines in much larger doses are required in all pathological conditions. Their action is so feeble that the experienced practitioner would be surprised at the difference of power. Hence to be guided right with promises of success, require some exercise of caution and prudence.

A number of Brazilians in dental practice, have organized a society for the objects usual to such bodies. I have a copy of the by-laws which govern them, placed in my hands, and a translation made. As a curiosity, or one quite differently governed from American, I shall present it to some of our dental journals for publication. It will repay perusal.

A NEW EXPERIENCE.

BY H. SCOTT.

Mr. R. came to my office to-day for some filling. He is a gentleman of thirty years of age, and of sanguine temperament and robust health. After the filling was completed, he asked my attention to a soreness of the gum between the right central incisor and cuspid of the upper jaw. The lateral had been removed a few years before, on account of an abscess at the root, as the dentist had told him, and the gums had been more or less sensitive and swelled ever since.

The absorption of the alveolus was perfect; but the margins of the gums in the locality was tumefied, extending more or less about the two adjoining teeth. All the mouth, in every other respect, was entirely healthy, the gums being firm, and all the teeth free from calculus. Without a moment's hesitation, I took up a pointed bistoury and made one puncture in the gum, near the incisor, when I was surprised to see jets of pure arterial blood thrown out persistently, and in perfect synchronism with the rythm of the heart. The jets were thrown fully an inch forward, and were so persistent that at least thirty minutes were employed to suppress the hemorrhage, which at last was accomplished by compression. The stream of blood was about equal to a number fifty cotton thread. A curious feature of the case was, that the artery came down from the palatine arch, which I found by compression on the inside, where the pulsations were quite strong. Nearly a pint of blood was lost before I succeeded in arresting its flow. There had been no unusual bleeding when the tooth was extracted.

AN ABNORMAL CASE.

Miss C., is seventeen years old, and well developed and healthy. She has the permanent central incisors above, well formed, then the permanent cuspids large, and in good order; next to these the deciduous cuspids, sound and firm; and then the bicuspids and molars in natural order. She never had a tooth taken out but the "*loose ones*."

I have been consulted recently in a case where an upper molar had split open, and I have every reason for believing, by the expansion of the gold with which it was filled. At least three-fourths of the substance of the crown was gold. The walls all round were sufficiently firm, as it seemed to me, to have stood all ordinary uses of the tooth; but they were broken obliquely below the margin of the gum, on the palatine side. The thickness and solidity of the fractured part forbid the conclusion that it could have given way in mastication. The gentleman said that the mallet was used in filling.

ATROPHY OF THE TEETH.

BY ARTHUR HOLBROOK, WAUKESHA, WIS.

Read before the Wisconsin State Dental Society.

Among dentists, an affection of the teeth, characterized either by perforations in, or discolored spots on the enamel, is commonly designated atrophy. The characteristics of genuine atrophy, however, are wanting.

According to modern lexicographers, we find the word applied to express a far different condition. It is defined as "a consumption or wasting of the flesh," "with loss of strength"—"wasting from defective nourishment"—"impaired digestion," etc. The term is not strictly applicable, but as it is evidently the result of altered function and defective nutrition in a portion of one or more of the formative organs, it may be regarded, and is already sanctioned, as the one most convenient for general use.

The affection, more properly considered, would be noticed as a congenital defect, which only occasions a disfigurement, and seldom requires attention from want of proper nourishment, or even from wasting, when the dentine is implicated, and then it is intimately connected with common caries. Only in exceptional cases, when the attack occurs subsequent to the formation of enamel and dentine, is there continual wasting, or any approximation to atrophy.

This exceptional oase, would come under another classification—approaching deundation, which is not in the province of this paper to investigate. We will confine ourselves to the classes enumerated, the spotted and pitted, or grooved, and accept the common appellation.

Odentatrophy, or atrophy of the teeth, has not received the consideration at the hands of the dentist, that its importance demands. Although of less frequent occurrence than most other affections of the teeth, yet it is a bitter infliction when it comes, and the unsightly advertisement of our ignorance, calls for investigation.

Why is it, that we must witness the sorrow and mortification of our patients, and only be permitted to administer a little consolation? Why is it, that we can not tell them the cause, and save those that come after them a double infliction? There are many problems to solve before we can do that, but it is time we commenced a solution of the first.

THE CAUSE.—While other minor affections of the mouth and teeth, are treated with zealous care and minute detail, this sad blight has been entirely overlooked by a majority of dental authors. For instance, Prof. Garretson, in his late work of 700 pages upon the "Diseases of the Teeth and Mouth," devotes about 100 pages to tumors, but not one to atrophy. The "*Cosmos*," one of the oldest and ablest of our dental journals, in all its pages, from the Dental News Letter of 1850, to the last month's number—a space of over twenty years—has not a half dozen articles upon the subject, and of these three fourths are selections from other journals. The hazard of the undertaking is apparent, but there are some that come boldly out. They are like springs in the desert, that strengthen and invigorate the weary, discouraged traveler. Authors like Tomes, of England; Harris, Taft, Judd, and others of our own time, have not hesitated to place themselves upon record. Also, Fox, Maury, Lintoll, Delabarre and others before them, contributed in their time, and from them all, we get the same general conclusions.

Attention will here be called to the accepted theory.

Dental atrophy may be divided into two varieties.

The first variety is characterized by spots, irregular in shape, size and location; varying in color from a pure white to dark-brown, and not confined to any class of teeth. The second variety is distinguished by the well known pitting, or indentations into, and occasionally penetrating the enamel, irregular in shape, location and color; at times connected, forming horizontal grooves. It attacks the incisors more frequently than any of the other teeth, and occurs oftener than the first variety.

A third variety is described by Harris, as a pale, shriveled kind, generally destitute of enamel, and confined to the bicuspids. Although its characteristics are closely allied to the subject, it is not necessary to embrace it here, but press investigation to the second or pitted variety.

The first variety does not impair the uniformity or smoothness of the tooth, and seldom requires attention. It is evidently produced by some cause capable of destroying the bond of union between the enamel and dentine.

"What that cause may be," says one author, "is very obscure."

The second variety does seriously impair the uniformity and smoothness of the tooth, often rendering it unsightly, and causing the keenest anguish. The cause for this variety can be more readily ascertained.

It will not do to rest with the fascinating, easily spoken theory, that it is all the result of a freak of nature, and then dismiss it as we would freckles, warts, or bunions.

Would it not be well to give a little attention to such "freaks of nature," when they are capable of producing such uniform results, and forever manifesting themselves under such peculiar and interesting circumstances?

Among the foremost of modern dentists, and an acknowledged leading anatomist of the day, stands John Tomes, of England. In the American edition of his work on Dental Surgery, page 272, is the following: "Although in many it is not in all cases easy to trace this riged pitted, or honeycombed condition of the teeth to the presence of serious indisposition of the patient, during the time when the defective portions of the tooth were being developed; it can, however, be scarcely doubted that an imperfect formation of the teeth, if not the result of some special disease, such as measles, influencing the system generally, is yet consequent upon a constitutional condition."

"The fact that if one tooth is affected, those parts of other teeth which correspond in respect to the period of formation will present a similar condition, precludes the supposition that the effect has been produced by a merely local cause. The evidence points to a general cause, but it will not uncommonly be very difficult to discover the precise nature of the cause."

Wm. Lintoll. once an eminent English surgeon, in a work published in 1840, says: "The cause of this extraordinary disease is evidently an imperfect formation of the enamel, resulting from disturbance of the system, either by ill health, or by the too free exhibition of mercu y, during the process of secretion by the membrane of the dental sacs." He then cites cases in illustration, from his own observation. Earlier authorities, such as Fox, Maury, Delabarre, and others, made similar expressions, and gave similar views.

Later again, Prof. Harris, writes in his Principles and Practice: "The formative organ of the enamel, as is now generally admitted, consists of a membrane, composed almost wholly of short hexagonal corpuscles or fibres, which correspond in shape and arrangement to the fibres of the enamel. This membrane is moulded accurately to the crown of the tooth, and according to Raschow, each fibre is a secretory duct, whose peculiar function is to secrete the fibre of the enamel corresponding to it.

It should be borne in mind that the secretion of the earthy salts of the enamel, commences at the coronal extremity of the tooth, gradually proceeding toward the base of the crown. Now we can readily conceive that some constitutional disease might interrupt the secretion of the earthy salts deposited in the enamel cells, or secretory ducts of the enamel membrane, for the formation of the enamel fibres, occurring at the time when this process is going on, it might prevent them from being filled, and cause th m to wither or waste away, giving to this portion of the enamel the pitted appearance. In other words, the secretion of the inorganic constituents of the enamel, being interrupted for a short time, the horizontal row of cells in the enamel membrane, into which it should be deposited, will not be filled; consequently, as might be readily supposed, they will waste away, leaving a circular row of indentations around the crown of the tooth. But as soon as the constitutional disease has run its course, the secretion of the earthy salts is resumed, and unless there is a relapse or second attack capable of interrupting the secretory process, the other parts of the enamel will be well formed." * * * He adds: "We believe it almost always occurs as a consequence of some eruptive disease or catarrhal fever, occurring during the process of "enameling," and there are many facts which go to sustain the correctness of this opinion. In nearly all cases that have fallen under our observation, it was clearly traceable to measles, scarlatina, chicken pox, catarrhal fever or small pox. It may, however, be produced by other constitutional diseases." Again: "The occurrence of the constitutional diseases about the time when the affected parts of teeth must have been receiving their earthy salts, would seem to establish, very conclusively, the connection of the one with the other."

Prof. Taft, in his Operative Dentistry, writes: "We are led to infer, then, that the origin of the affection is for the most part constitutional, and not local. There are commonly found traces of it on all the teeth whose enamel was in process of formation at the time of the interruption. Any general disturbance, such as to interrupt the assimilative process, would be detrimental to the perfect formation of the enamel. * * Any disease that would interrupt the functions of the digestive apparatus, would be prejudicial to the process of assimilation—whilst other diseases, such for instance, as those of a fibrile character, would diminish the vital power, and consequently the ability to build up organic structures without interrupting in any special manner the process of assimilation."

In the "*Cosmos*," for last April, will be found an extract from the "*Medical Gazette*," detailing a case reported by

Drs. Perine and Franklin, dentists in New York: "As we are unacquainted with any agents except acids, that are capable of acting upon the enamel or dentine, we are inclined to adopt the theory, that sometime during the continuance of diseased action, the secretions of the body change from alkaline or neutral condition, to an acidulated one, with sufficient solvent powers to either decompose the lime salts before calcific action takes place, causing arrestation of the formative functions, or by attacking the newly formed tooth, and dissolving the lime salts from it. * * * Teeth sometimes present deep pits or grooves across the surface of the enamel, in a more advanced state of development, while those less progressed find immunity."

After enumerating a list of diseases and disorders which would cause the affection, they state that they doubt very much whether any medicine could thus affect the teeth, unless acid remedies might possibly exert a slight action.

This leads us to consider the evidence given. Is it conclusive? Is there a cause? With the testimony before us it can hardly be denied. It can not be traced to a specific cause in all cases, but that is no argument that there is no cause.

There are peculiar conditions that prevent a complete analysis. We have first the want of positive knowledge. Parents and children are mortals, and their testimony can only be taken, when actual observation and experience are devoted to the interests of the teeth in question. The diseases and mishaps of childhood are numerous, and to enumerate them years after, and faithfully describe their peculiarities, from the memory alone, would be almost impossible. There are again, cases that are reliable, upon which we may depend; cases that have peculiar associations in connection with them, to assist the memory, or cases that are not distant or remote from the time, and which the dental adviser may have noticed. Many points are necessary to be considered, in arranging a complete investigation of the cause of this affection, and we have confidence in the ability of those who have expressed themselves, to accept their solution.

That disease and medicine do affect the other members of the human body, often arresting development, or disturbing them from their natural growth, is not denied.

Then why not arrest the development of tooth structure? It is the source of greatest trouble after development, and decaying teeth stare us from every mouth. When we acknowledge our ignorance upon this point, can we sustain our conclusions that disease affects the teeth at all?

It seems plausible, that it is a rule that will apply very closely in both cases.

Any action of medicine or disease any disturbance of the normal functions of the system, mechanical or physical, subsequent to the formation of the tooth, can and does influence the development of the tooth structure, as well as other parts of the system, and when occurring at that critical period will produce atrophy. When occurring at a later period it will influence the tooth itself, weakening it, penetrating it, and causing disease or common caries.

Upon the development of the teeth, the following from Kolliker's Microscopical Anatomy, American edition page 486: "The first step is the formation of a little scale of dentine upon the apex of the pulp; in the molar teeth there are several of these scales, corresponding with the elevation of the pulp, but they soon coalesce. Immediately after the appearance of this dentinal scale, a thin layer of enamel is deposited from the so called enamel organ upon the roof of the sac, and which coalescing with the dentine, forms the first rudiment of the crown of the teeth. The scale of dentine extends over the pulp and becomes thicker, so that it soon rests upon the pulp like a cap, and finally forms a sort of capsule for it, which as ossification proceeds, and the pulp diminishes, closely and completely embraces it; the deposition of enamel goes on simultaneously with it so that it proceeds from the entire surface of the enamel organ, and becomes more and more considerable. In this manner the whole enamel is eventually deposited around the dentinal layer of the crown, until the former is represented only by a delicate membrane; and the latter presents similar relations to that of the perfect tooth. As yet, there exists no trace of root or cement, they are not formed until the crown is nearly completed, and the tooth is about to emerge." "Their ossification begins (permanent teeth) somewhat antecedent to birth in the first molar, extends in the first, second and third years, to the incisors, canines, and premolars, and finally reaches the second molar." To note the manner, how, and where it commences, and the time, are points of vital interest in this matter. Of course, the time given, is the estimate for another country, and we well know that it varies greatly with this. The periods of ossification also vary in the same country—in the same families—as well as the time for teething, for the tooth is not projected until the root has commenced ossification. Hence in tracing causes we take into consideration the time of ossification, and the time of teething. The period for eruption should correspond in all normal cases, with the period of ossification. Then with the actual facts we may determine the time, and attempt conclusions, for our investigations in that direction are quite uncertain; none of us infallible, and no council of interested parents, children, or friends, can make us so.

At our last meeting, the injurious effects of vaccination were advanced, at the period when it is so critical, in the future, growth, and beauty of the teeth, and a case of unusual interest in support of the theory, was cited.

Prof. Judd, of St. Louis, referred to it in the following extract from a private letter: *"The case you report is an

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* Child, age 7; vaccinated, 3; scarlatina, 4; erupted at 5. The distance from edge to 1st line and 2d line equal, about two lines separate; and the distance from 2d line to gum, a trifle more; on central edge only affected of molars.

interesting one, and worthy of study. * * In the first place, it may be taken for granted, that the pits were not formed in the enamel after calcification of the latter was completed, so that if the child was vaccinated after the teeth should have been calcified at that place when the pits appear, it would be a very strong argument in favor of the supposition that there was no connection between the vaccination and the appearance of the pits or defects, and *vice versa*, I think it quite probable that in the case cited, there was a direct connection between the vaccination and the pits." He also adds his testimony to the morbid influences upon the teeth from diseases of childhood, in arresting development, and causing the affection.

The growth of structure is from the ceronal surface, from the cutting edge, which easily accounts for a succession of grooves or pits.

OBLIVIOUS?

In the April number of the *Dental Cosmos*, Dr. A. C. Castle remarks, "The city of Baltimore and the city of Philadelphia, have the honor of having inaugurated dental schools."

Probably the doctor never heard of Cincinnati—a village lying at the northern end of the longest wire bridge in the world. And may be he didn't know that the said village had a dental school before the said city of Philadelphia. And possibly he didn't know that the said school gave the first course of lectures on dental chemistry, the Christian philosopher, Elijah Slack, being the lecturer. And doesn't know that the two leading textbooks were written by the alumni and professors of the said school. How could he? He was not writing "notes for a memoir" of dental colleges. W.

Proceedings of Societies.

CALIFORNIA STATE DENTAL ASSOCIATION.

The second annual meeting of the California State Dental Association, was held at the rooms of the San Francisco Dental Association, San Francisco, June 6th, 7th and 8th, 1871.

The association was called to order at 10:30 A. M., by the President, Dr. C. C. Knowles.

President Knowles delivered his annual address, which was received with applause, and that portion of it relative to the education and elevation of the profession, referred to the Committee on Dental Literature and Education, and address in full to the Publication Committee.

The several Standing Committees asked further time to report. Granted.

Drs. Austin, Younger and Dennis, were appointed to select subjects for discussion.

An amendment to the by laws, laid over from last session, creating an Auditing Committee, was taken up and passed.

Drs. T. Crossett and J. O. Belle, of San Francisco, and A. C. Davenport, of Stockton, were admitted to membership.

The committee appointed for said purpose, reported the following subjects for discussion.

1st.—Filling Teeth.
2nd.—Hemorrhage after Extracting Teeth.
3d.—Treatment of Alveolar Abscess.
4th.—The Cause and Treatment of Loose Teeth.
5th.—Treatment of Exposed Pulp.
6th.—Mechanical Dentistry.
7th.—Dental Pathology.

Adjourned to 1:30 P. M.

AFTERNOON SESSION.

Called to order at 1:30 P. M. President Knowles in the chair.

Minutes of morning session read and approved.

The subject of "Filling Teeth" was taken up, and thoroughly discussed by nearly every member present, the discussion lasting nearly three hours.

(Ed.—A synopsis, even of the discussion would be too long for your purpose—Pub. Committee.)

Dr. C. Hamilton, of Unionville, Nevada, was admitted to membership.

Adjourned to 8 P. M.

EVENING SESSION.

Called to order at 8 P. M. President Knowles in the chair.

An application was received from a gentleman claiming to be a member of the profession, and after being duly examined, permission was given to the applicant to withdraw said application. The members, however, were unanimous in the opinion and determination to admit none to membership but those who could come well recommended as to professional honor, good moral character, etc., etc , as it is desirous to make our association equal to any in the United States, so far as the honor, professional and otherwise of its members are concerned.

Subject of Filling Teeth again discussed.

Dr Austin read an essay on the "Pathology and Treatment of Alveolar Abscess," which was of much interest to those present, and contained very much that was endorsed by the association.

Adjourned to 10 A. M., to-morrow.

SECOND DAY—MORNING SESSION.

Met at 10 A. M. President Knowles in the chair.

Roll called, and minutes of last session read and approved.

Dr. Sichel, exhibited specimens of Hyatt & Perkins' base for artificial dentures.

Dr. F. M. Shields, of Sacramento, and L. G. Yates of Centreville, were admitted to membership.

Dr. S. W. Dennis, read an essay on the "Causes of the Degeneracy of the Teeth, especially among Children," by S. P. Cutler, M. D., D. D. S., of New Orleans, La.

The association tendered to Dr. Cutler, a vote of thanks for his kindness in furnishing us the very able paper, and made him an honorary member.

The subject matter of Dr. Cutler's essay was discussed at length.

Adjourned to 2 P. M.

AFTERNOON SESSION.

Called to order at 2 P. M., by President Knowles.

Roll called, and minutes of morning session read and approved.

Drs. Younger, Dutch, and Crossett, were appointed a committee to draft resolutions appropriate to the memory of Drs. F. A. Park, and H. J. Paine, deceased since our last annual session.

The subject of "Hemorrhage after Extracting Teeth," taken up and thoroughly discussed.

Dr. Sichel, favored mechanical pressure to suppress hemorrhage when possible.

Dr. Bush related a case where profuse hemorrhage followed the extracting of a deciduous superior molar. Failing to arrest it with the usual remedies, finally succeeded with *ice*, applying direct to the socket and surrounding gums.

"Treatment of Alveolar Abscess," was next discussed.

Dr. Younger claimed that not five per cent. of cases treated by him were unsuccessful. His favorite remedy was saturated solution of iodine, to be thoroughly pumped into the sac, and continued until cure is effected.

Adjourned to 8 P. M.

EVENING SESSION.

Met at 8 P. M. President Knowles in the chair.

Officers all present, excepting J. Ball, librarian.

Minutes of afternoon session read and approved.

Drs. J. A. Woodward, of San Francisco, and N. Klein, of San Jose, were admitted to membership.

Hour of special order having arrived, proceeded to election of officers for ensuing year, with following result:

President—S. W. Dennis, of San Francisco.

Vice Presidents—H. H. Pierson, Sacramento; J. J. Menefee, San Jose; T. Crossett, San Francisco.

Corresponding Secretary—H. E. Knox, San Francisco.

Recording Secretary—H. J. Plomteaux, Woodland.

Assistant Recording Secretary—J. N. Myers, Stockton.

Treasurer—C. C. Knowles, San Francisco.

Librarian—A. C. Davenport, Stockton.

Dr. Knowles retired from the chair, and in appropriate remarks introduced the President elect, who with the other officers assumed their respective stations, and at once entered upon the discharge of their duties.

Drs. J. J. Birge, Wm. Dutch, H. H. Pierson, S. W. Dennis and W. W. Light, were elected delegates to the National Dental Association.

Adjourned to 10 A. M., to-morrow.

After the election, the association went in a body to partake of the bountiful supply of the luxuries of life, prepared under the auspices of the San Francisco Dental Association, where the sentiment seemed general that the meeting was a success.

THIRD DAY—MORNING SESSION.

Association met at 10 A. M , and was called to order by the President, Dr. S. W. Dennis.

Roll called, officers all present.

Minutes of last session read and approved.

Committee on Mechanical Dentistry reported that they had received no information as to the merits or demerits of the Rose Pearl work, presented by Dr. Smith at our last annual session, consequently had nothing further to report concerning it.

Dr. S. W. Dennis, in behalf of the Committee on Dental

Literature and Education, made a very interesting report. Referred to Publishing Committee.

Several resolutions of amendments to the Constitution, were read and laid over under the rule, until next annual session.

Dr. Belle, offered a series of resolutions relative to certificates of membership, which was referred to Drs. Knowles, Birge, and Menefee.

Dr. Knox, offered the following, which was adopted:

Resolved, That our delegates to the American Dental Association be, and are hereby instructed to use all their influence, that the session of 1872, of said association, be held in San Francisco.

Notice was given, that previous to the commencement of the afternoon session, Dr. Knox would illustrate the use of the rubber dam.

The President was authorized to fill any vacancy that may occur from death during the coming year, in any of the Standing Committees, by appointment through the Recording Secretary.

Adjourned to 1:30 P. M.

THIRD DAY—AFTERNOON SESSION.

Called to order at 2:30 P. M. President Dennis, in the chair.

Minutes of morning session read and approved.

The following preamble and resolutions were unanimously adopted:

In Memoriam.

Whereas, It has pleased Almighty God in His infinite wisdom, to remove from our midst our late brothers, Drs. F. A. Park, and H. J. Paine; therefore,

Resolved, That in the death of brothers Park and Paine, the dental profession has been deprived of two of its most active, efficient, and honorable members, and the community of just and upright citizens.

Resolved, That we, the members of the California State Dental Association, deplore the grievous loss which their families have sustained, and cordially sympathize with them in their great bereavement.

Resolved, That the Corresponding Secretary be instructed to forward a copy of these resolutions to Mrs. F. A. Park, and Mrs. H. J. Paine, and that a copy be spread upon the minutes of the association.

Dr. W. J. YOUNGER,
Dr. WM. DUTCH,
Dr. T. CROSSETT.

The committee to whom that part of President Knowles' annual address, relative to dental education, etc., was referred, reported a series of resolutions heartily approving his suggestions, and recommended that stringent rules should be adopted to prevent the admission of members to our society, who have not a well established reputation for scientific attainments. Also, recommending that members do not fellowship professionally with those not possessing the above qualifications, etc. Report accepted.

Committee on Publication, reported estimates of cost of publishing monthly periodicals, size of the "*Dental Office and Laboratory*," and size of the "*Missouri Dental Journal.*"

Dr. Knowles offered the following:

Resolved, That it is expedient that a dental periodical be published under the supervision of this association.

Referred to Committee on Publication, with instructions to ascertain the facts relative to aid from the members, probable number of advertisements to be secured, etc.

Dr. Dennis read a letter from Dr. E. A. Bogue, soliciting aid to prepare a suitable testimonial for Dr. S. C. Barnum, inventor of the rubber dam.

Dr. Dennis made a pressing appeal in behalf of said inventor, and the matter was referred to a committee consisting of Drs. Knowles, Younger, and Dutch, to take into consideration the propriety of making some substantial recognition to Dr. Barnum for his valuable invention, and our delegates to the American Dental Association, were instructed to use their influence for some general plan, whereby a suitable "national testimonial" can be secured for Dr. Barnum.

The President appointed the Standing Committees for ensuing year, as follows:

Committee of Arrangements.—Drs. Birge, Davenport, Shields, Yates and Dutch.

On Publication —Drs. Dennis, Plomteaux, (ex officio) Knowles, Younger and Bunnell.

On Scientific Investigation.—1st Section—Operative Dentistry—Drs. Dutch, Menefee and Pierson.

2*nd Section—Dental Chemistry.*—Drs. Light, Sichel and Belle.

On Dental Pathology and Surgery.—Drs. Austin, Crossett, Prather, Kingsbury and Klein.

On Mechanical Dentistry.—Drs. Woodward, Bush, Myers, Cool and Hamilton.

On Dental Literature and Education.—Drs. Knox, Younger, Crossett, Eaton and Knowles.

Auditing Committee.—Drs. Menefee, Light and Myers.

San Francisco was chosen as the place for next annual session.

On recommendation of Dr. Dennis, Professors J. H McQuillen, Homer Judd, and J. Taft, were declared honorary members.

The President assigned subjects for thesis to be read at next annual session, as follows:

Dental Therapeutics—Dr. Knox.

On the Causes of Degeneracy of the Teeth, especially among Children—Dr. Birge.

On the Causes of Irregularity of the Teeth, and best method of correcting the same, to Dr. Knowles.

On the Pathology and treatment of Alveolar Abscess, to Dr. Menefee.

On Dentistry, its history, present status, claims and relations, to Dr. Plomteaux.

On Professional Ethics—Dr. Bunnell.

On the Causes and treatment of Loose Teeth, to Dr. Younger.

On motion, adjourned to meet in San Francisco, second Tuesday in June, 1872, at 10 A. M.

Editorial.

WHEN PHILOSOPHERS DIFFER?

"The Statical motion holds dominion in the Mineral kingdom; the Vibratile, in the Vegetable, and the Locomotive in the Animal, and are correlated to Crystallosophy, Cellosophy, and Corpusculosophy, as the differentiated expressions of organic planetary forces."—*Dental Cosmos*, p. 372, vol. XIII.

That is a clear expression of the doctrine we have always advocated; and we have been sadly discouraged to find the profession so slow to recognize it. Only a few bright intellects (like the speaker quoted,) seem to have profited by our teachings; and, now, Blinks, who has gone crazy over the physiology and pathology of steam engines, and who, consequently, claims to speak only as the spirits of James Watt, Fulton, Black, Bolton, and others, give him utterance, tells us that "statical motion," (which he says is the motion bodies have when perfectly still,) is best illustrated by a waiting train on a "side track," or a steamboat on the docks for repairs; the vibratile, or "to and fro," he says, is perfectly illustrated by the yard engine, and the ferryboat; and the "locomotive" in the lightning trains; and these, he tells us, are correlatitudinarianebulated to crustyshallophilapidosophy, cellerylophistichophagy, and corporaloscholastifumigasophy, as the defunctorifferationary expressions of organic planetary forces.

It is possible Blinks is right. He wears very long hair; and appears to speak "from the fount of inspiration which wells up within" him; but we find it hard to give up a favorite theory so long cherished. W.

* * *

We understand that arrangements have been made for a very thorough course of lectures on the Microscope, in this city, during the coming winter, by Dr. Geo. E. Jones. It will have especial reference to the practical working of the Microscope, and also in its application to medical science. This subject is one to which the Dr. has given a large share of attention, and one the presentation of which in his hands will be very interesting and instructive to all for whom it has any attractions. T.

THE

DENTAL REGISTER.

Vol. XXV.] SEPTEMBER, 1871. [No. 9.

Communications.

OXYGEN IN ITS RELATIONSHIP TO THE VITAL PHENOMENA.

BY J. F. SANBORN, M. D., TABOR, IOWA.

An Essay read before the Iowa State Dental Society, held at Council Bluffs, July 13th, 1871.

Mr. President, and Members of the Dental Profession:

It is with pleasure I again meet you at this, our annual gathering, and again invite your attention to an Essay upon a subject strictly physiological.

It is very natural for us to study effect, rather than the cause, and the relationship existing between cause and effect.

If, as shown by our Essay last year, life is the sum of all the vital changes, then the study of the relationship of these changes is a subject worthy of the profoundest philosopher.

The first act in all animal existence is the breathing of atmospheric air, the vital principle of which is oxygen; the suspension of breathing is followed by death; therefore, in order to enjoy life and health, air must be supplied regularly, in full quantity, in right proportions, and uncontaminated with foreign gases.

Pure atmospheric air is composed of four parts of nitrogen to one of oxygen. This proportion is maintained in all parts of the inhabitable earth; to the dwellers on the higher elevations as well as the lowest parts of the earth's surface, in the wilds of the jungle, or on the rolling ocean chemical analysis has never been able to detect any difference.

Oxygen was first discovered by Dr. Priestly, in 1774, and was by him called "vital air," but was named oxygen by Lavoisier because at that time it was supposed to be the active principle in all acids: the discoveries of modern chemistry have demonstrated this to be an error.

Oxygen is a gas, colorless, tasteless, and inodorus; we can neither see or feel it, yet it enters into the composition of the largest portion of our globe.

In nature it is never found pure but is always chemically, or mechanically combined with some other substance. Its weight is one tenth more than atmospheric air. Water is a combination by weight of oxygen, 8 parts to 1 part of hydrogen; in bulk, oxygen 1 part, to hydrogen 2 parts. Hydrogen is the lightest of all known substances, and is 16 times lighter than oxygen.

Oxygen is the most widely diffused of all the elements; it constitutes one-fifth of the atmosphere, eight-ninths of the water, and nearly one-half of every solid substance we see around us.

Oxygen is supposed to exist both in a quiescent and active state: the latter is known as ozone.

As our subject is oxygen rather than ozone, we leave the latter for the investigation of others.

There is a distinction to be made between chemical and vital action, the latter may not be in violation of chemical law, but it is of a higher class of actions, and is the development of a higher state of matter from that of a lower, while chemical action is disintegrating or breaking down of organic matter, and restoring it to the quiescent, inactive, inorganic, non-vital condition.

We find oxygen associated with nitrogen in the following proportions:

Nitrogen four parts, oxygen one part, to constitute common air.

N. 1, O. 1—Nitrous oxide.
N. 1, O. 2—Deut. oxide of nitrogen.
N. 1, O. 3—Hypo nitrous acid.
N. 1, O. 4—Nitrous acid.
N. 1, O. 5—Nitric acid.

It will be seen that nitrogen and oxygen have uncommon affinity for each other; there being six different combinations, five of which are chemical; and with each additional proportion of oxygen to one of nitrogen, is the compound ready to part with one or more of its proportions of oxygen to any other substance; this is carried to such a degree of activity as to pass from pure benevolence to aggressive warfare, and so forces its super-abundance of oxygen on other substances, and disintegrates them.

This may be seen by the readiness with which nitric acid destroys whatever it comes in contact with.

Atmospheric air is but a mechanical mixture, so the oxygen can be readily separated from the nitrogen to support animal life.

The nitrous oxide is equal parts of oxygen and nitrogen chemically combined, and much used for anæsthesia, notwithstanding the two inseparable obstacles to its being a true "vital air."

1st. It is a chemical combination of the two gases.

2d. The unphysiological proportions. And as has been stated, atmospheric air is oxygen, one part to four of nitrogen. Nitrous oxide is one of each.

Nitrous oxide, chloroform, or any other inhaling anæsthetic do but deprive the vital economy of its natural supply of oxygen.

In order to the full, free and well balanced vital action to constitute respiration, three things are necessary.

1st. The natural supply of air to furnish the blood with oxygen so essential, that a deprivation of it causes death in a few minutes, and is known as death by asphyxia.

2. The circulation is in part the conveyance of the oxygen to where it is wanted.

3d. The brain power that regulates these actions, is itself dependent on the other two actions to keep itself in full, free action.

The inhalation of an anæsthetic in place of air, deprives the system of oxygen, in part at least, which destroys the balance. The cerebrum, the seat of sensibility, is supplied with blood charged with a poisonous drug, in place of its accustomed oxygen, which paralyzes it, and you have the anæsthesia desired, but it is occasioned by an unphysiological relationship between the brain and what? 1st. Negatively—The brain is deprived of oxygen. 2d. The blood is charged with carbonic acid gas and other broken down matter, that should and would be removed under the ordinary action of normal breathing, but are retained for want of oxygen to remove them, and by their presence poison the whole system, and especially derange the functions of the brain; thus anæsthesia is produced by paralysis.

3d. The brain may be influenced by both these unphysiological relationships, and the sedative action of the drug. The fumes of burning charcoal in a close room, are but common air deprived of oxygen and carbonic acid gas, or nitrogen and carbonic acid gas; both incapable of supporting life, yet if any person should breathe for any length of time such a combination of gases, anæsthesia would be produced and death would soon follow, not from the azotic condition of the gases, but from the asphyxia or depression of the system for want of oxygen.

In giving an anæsthetic there is undoubtedly sometimes a closing of the epliglottis, and death by asphyxia is the result.

The paralysis of the brain from whatever cause may and does sometimes extend from the cerebrum to the cerebellum, and the lamp of life is puffed out in an instant, and the friends are called upon to mourn the wonderful dispensation of Providence.

From like cause the numo-gastric nerve may become paralyzed and the lungs cease to act; or the sympathetic nerve may become paralyzed, and the heart cease to act and death be the result.

How appropriate are the words of Prof. O. W. Holmes:

> "God gave his creatures light, air,
> And water open to the skies,
> Man locks him to a stifling lair
> And wonders why his brother dies."

These are my objections to anæsthetics.

Physiology is not an exact science, like mathematics. There is a diversity of opinions entertained by various authors in regard to the use oxygen subserves in the animal economy.

Your attention is invited to some of these, together with our conclusions, all of which you will weigh in the balance of your good judgment, and "govern yourselves accordingly."

Dr. A. E. Ames, of Minneapolis, Minn., in a conversation a few weeks since, on the source of animal heat, says substantially as follows: "By the oxy-hydrogen blow pipe the greatest degree of artificial heat is obtained, and that without light, but silently the most refractory of the metals are fused. In like manner the oxygen received into the lungs unite with the hydrogen everywhere present in the system; by their union water is formed and animal heat produced.

The evaporation of the water regulates the temperature of the body, and thus is beauty and harmony preserved."

Lavoisier believed oxygen received in the lungs was there combined with the carbon in the blood, and immediately exhaled as carbonic acid gas; the lungs really acting the part of a stove to burn the carbon, and in this way animal heat is produced. Liebig's theory is the same.

If this were the true theory the lungs would be the warmest part of the body. The fact is they are the coldest.

Carpenter thinks the oxygen is carried to every part of the body in the arterial blood, and combines with the hydrocarbon in the capillary system to produce animal heat.

Dalton says, "with regard to the mode of generating of the internal or vital heat, we start with the assertion that its production depends upon changes of a chemical nature; and is so far to be regarded as a chemical phenomena."

"The numerous combinations and decompositions which follow each other incessantly during the nutritive process, results in the production of internal or vital heat."

So much for the chemical theories.

Prof. Payne, of New York University Medical College says, "Neither the union of the oxygen of the air with the carbon of the blood or with that of the body in the act of respiration, or excretion of carbonic acid gas has any greater connection with the production of animal heat than with the gastric juice, or any other result of organic formation.

Bicart says, "The state of the respiration has no influence on the actual heat of the body."

Prof. Payne says, "When we place on one side all the phenomena of animal heat, and on the other the chemical hypothesis, it appears to me so inadequate to the explanation, that I think every methodical mind can refute it without any assistance."

John Hunter says, "The power to generate animal heat in animals, arises from a principle so connected with life that it can, and does act independent of the circulation, and is that power which preserves and regulates the internal machinery."

Muller says, "There must be still some other source of animal heat than respiration."

He places it in the organic resources in which by the organizing forces on the organic matter, heat is generated; not in one, but in every organ of the body.

Treadman, holds to the same views.

Who shall decide when such Doctors disagree?

That the inhalation of atmospheric air; the absorption of oxygen by the blood, and the exhalation of carbonic acid gas are essential to vitality, all are agreed; but where the change takes place, and the nature of the process, there is quite a diversity of opinion.

I have been unable to find in what consists the vital action, or the modus operandi of the production of animal heat as believed by the vital theorists.

In default of others to render a satisfactory explanation, I propose to place myself on the record as solving the mystery, and here present a theory that I think fills the demands of the case.

The use of oxygen in the vital economy, is so intimately connected with animal heat, that it is quite out of the question to discuss one without having the other somewhat in view.

The sun is the source of light and heat to our globe.

The rays of the sun heat some places more than others, this difference in temperature causes the winds to restore the equilibrium.

The winds and the sun in evaporating moisture, the cold currents of air coming in contact with the warm ones saturated with moisture, causes its condensation, and it drops in rain.

The warmth of the sun and the moisture of the rain, causes vegetation to grow.

The gentle breezes and high winds give a variety of motion, which is the exercise of vegetable life; which causes it to strike its roots deeper into the soil where a greater supply of nourishment is furnished, and a greater growth obtained.

Surely there is harmony in the operations of nature.

In this growth there is an expenditure of solar heat, which is stored up in the vegetable tissue, be it wood, fruit, grass or seed; wherever there is growth, there is an accumulation of heat, which is carefully stored up for the use not of itself, but for man's comfort and convenience.

The coal taken from far below the earth's surface to supply the length and breadth of the land with fuel; and the petroleum that casts so much light on the operations and designs of man, and adds so much to his comfort and pleasures, are but the reserved heat of the sun accumulated long ages, before Adam's creation.

The heat of the sun is apparent heat; that stored up in vegetation is latent heat, which will there remain thus stored up, independent of the surrounding temperature, however long continued.

We might have thousands of cords of wood seasoned ready for the fire, and yet perish for want of the latent heat therein contained.

Thus we can obtain by elevating the temperature of the wood until oxygen will readily combine with its structure and reduce it to the original elements of which it is composed.

The unconsumed vapors, and carbonic acid gas pass away into the great ocean of atmosphere, the chaos from which it was derived, and the remainder of the wood is reduced to ashes.

The organic wood has by the agency of oxygen been reduced to its original elements, and in this disintegration, or breaking down of wood structure, the latent heat stored up years before, has become apparent heat, and we are permitted to enjoy its benign influence.

The greater the avidity with which oxygen combines with any substance, the quicker it is disintegrated and the greater is the amount of apparent heat we are permitted to enjoy. Had the wood undergone the slow process of decay, precisely the same amount of heat would have been liberated and have been imparted to the surrounding atmosphere, even though it should have been hundreds of years in decaying.

Heat and motion are interchangeable conditions, but like matter are never annihilated.

Vegetation is the reservoir for the storing up of apparent heat so abundantly supplied during a goodly part of the year.

The grass contains it; so does the oats and corn, the wheat and all classes of food.

The horse and ox build up their structure from the grass, hay and grain.

The food for the animal kingdom must be the result of growth, either vegetable, or animal, in order to contain proper material to form tissue, which must be digested and becomes nutritious matter in the blood, which must be carried to every part of the system, wherever it is wanted, it is used to build up and supply the waste tissues.

We are continually breathing oxygen from the surrounding air, this is conveyed to the red corpuscles of the blood in every part of the body, and is there ready provided, wherever and whenever wanted to unite with the tissues, disintegrating them or reducing them to a broken down condition, just as the wood is reduced to ashes, and in this breaking down of tissue, the latent heat therein contained becomes apparent and the real source of animal heat.

Wherever this disintegration takes place, there the carbonic acid gas is found, and is immediately passed to the lungs and liver for elimination.

It will be seen that we make oxygen a universal breaking down agent, and not building up agent.

The decay of all organic matter is by its action; all combustion is maintained by its presence, even the solid rock is not proof against its influence; the iron and steel are corroded by it and reduced to a worthless substance; even gold and platinum are not proof against its influence.

Life is action, the sum of the vital changes, the tear down is as much a vital process as the build up, and oxygen is a "vital air," performing its essential vital action not in building up, but in breaking down, and animal heat is one of the vital changes, the effect of which, the disintegrating action of oxygen on the vital tissues is the cause, and wherever the breaking down takes place, there is animal heat generated.

Physical exercise increases the breaking down of the tissue; this creates a demand for an increased supply of oxygen for that purpose and as a consequence, there is an increase of animal heat.

This in severe physical exercise is familiar to every one, and may be seen in animals exposed to long continued cold; the shivering is but involuntary exercise made to increase animal heat, and is explainable on the above principles.

From birth to death the first and most imperative demand is for air, the active principle of which is oxygen, and its introduction is the fundamental event of animal life; all other physical operations are subordinate to this, and depend upon it.

We eat, digest, and assimilate food, only that it may finally administer to the respiratory process, and be disintegrated by oxygen.

It destroys a part for the good of the whole, and is thus the great motor of animal vitality.

If we in any manner touch the relationship of oxygen to the living system, the vital machinery is at once deranged. The use of anæsthetics of whatever character, for the time being, disturbs this relationship, and the frequent deaths from their use, proves the truth of this assertion, and the danger of such a practice.

Nature's demand is true obedience to physiological law.

DENTISTRY *vs.* MONEY.

BY R. S. WELLS.

Read before the Wisconsin State Dental Society, July 12, 1871.

That "self protection is the first law of our being," is the universal voice of reason, and "if any provide not for his own, and especially for those of his own house, he hath denied the faith, and is worse than an infidel," is the word of inspiration, each agreeing to the same truth.

To provide for our professional wants, and to protect our mutual interests, is the object of our gathering in associate capacity to-day.

I have chosen my theme, "Dentistry *vs.* Money," or "Values in Dentistry," for the following reason:

Subjects pertaining to the *acquirement* of professional knowledge and skill, are the themes almost exclusively dwelt upon by our writers and public teachers.

I would not underrate these themes, for it is of the first importance that we *have* skill and knowledge, but it is essential also, that we know how to *use* them. A defective bolt may destroy the efficiency of the most perfect engine, and so may a misconception of business principles applied to skill and knowledge, render them unproductive of pecuniary reward.

In adopting this, our chosen calling, without doubt, the monitary idea was the principle one with us all, then why pass it by in our public deliberations, with such silent indifference, while in our private meditations, it claims so large a share of our thoughts.

Yankees worship success, and especially devout are they, at the golden shrine of pecuniary success. "The surest way to be a success, is to succeed," say they. Morals in *methods* are ignored. Let us not fall in with this pernicious doctrine, but use only right and honorable means of advancing our prosperity.

When I see a pecuniarily successful dentist, I want to "button-hole" and learn from him the secret of it.

We are in the habit of hearing this statement in answer to our inquiries on this point: "The skillful will *always* succeed. But the question arises, How about opportunity?

If they mean by skill, ability to take advantage of circumstances, or to *make* opportunity, I grant it, for it is the secret of all success.

> "Fortune is a lazy goddess,
> She will never come to you."

But if they mean mere professional knowledge and skill, I deny it, for it is well known that the amount of money a man may have, is not always in the ratio of his ability. Circumstances may favor one and not another. Look, for illustration, at Goodyear and Bacon. The former had inventive talents of the highest order, which is producing a rich pecuniary harvest; but he sowed, while Josiah reaps, and we are his golden sheaves.

A merchant with sufficient capital and ability, to buy advantageously, and sell cheaply, and with a good market—the main conditions of success—may utterly fail, because he neglects other conditions, miner in themselves, in not securing a good location for trade, or in not advertising properly.

I do not counsel greater greed for gain, but better methods for obtaining it.

There are certain conditions to be met in all kinds of business, and a proper understanding of those pertaining to our specialty, is of interest to us all.

All legitimate and honorable business is founded on the principle of reciprocity, or value returned for value received.

A man must have an article of value to exchange for other values, and then must find or *make* a market for it to succeed. I say make a market, for to create a demand for his article, may require business skill of the highest order;

but this will be considered more fully under the head of advertising.

What is value? "Value consists in use."

Says an eminent writer on National Economy, "It is that property or those properties which render anything useful. They are valuable, because they are useful. A reaper is valuable for its useful qualities. The same is true of ornaments, they are valuable because they are useful for ornamental purposes." The same is true of knowledge, it is valuable because it is useful to alleviate suffering, shield us from danger, and add to our happiness.

So of everything necessary to the support and comfort of man. They are valuable because of their useful qualities.

Now, what have we of value to exchange for money? The first thing I will mention is

SKILL.

When your skill puts into a persons mouth, a thing of beauty, more valuable for ornamentation than the costliest diamond, that rejuvinates the fading charms of the waning beauty more than the most costly toilet, that removes facial deformity as no other art however costly, or surgical device however expensive can, that gives more gustatory pleasure than the most luxurious viands, that adds to the length of the days of the invalid, by aiding nature in her work of digestion, as nothing else does, then for *such* a product of skill, to charge no more than a blacksmith receives for the same amount of time expended on your horse, looks, certainly, as though you thought your product had no more value than his. Suppose, if you find a diamond by an hour's search, is that a reason why you should sell it for the price of an hour's wages?

A man is suffering the pangs of toothache, by your skill you relieve him in an hour, or it may be in a minute, shall you therefore be compensated only for an hour's or a minute's time at day laborers' wages? Clearly not. The less the time, the more the pay. There is sometimes, not always, a realization of this idea in surgical dentistry, but when we look at mechanical dentistry, as it is commonly called, how false are the views of many; they charge as though they were mere mechanics, and the result is, the public take them at their own estimates of themselves, and their own operations show sooner or later, the bad effect of this low standard. A man is never up to his ideal, but always below it, therefore correct ideas are all important on this, as well as on other subjects, to make our practice right.

KNOWLEDGE.

The next thing we will consider, is the value of dental knowledge. Any respectable attorney will charge a fee of from ten to fifty dollars for an ordinary case. This retainer is a prepayment for the legal knowledge he expects to impart.

If he pleads in any court for you, this service will call for an additional fee. In fact, his fees are mainly for legal knowledge imparted, and so it is with the medical profession. They no longer furnish medicines of value, but charge for medical knowledge mainly. But how about the dentist. Shall he furnish advice that will save priceless gems for future beauty and usefulness, and receive no compensation for that knowledge? It has cost him much in time and money for its acquirement, not only the first investment for tuition, but for the experience of after years, which comes through study and experiments. He must spend no small amount of time in the investigation of new facts and theories to keep pace with the rapid strides of our vigorous young profession.

A wealthy patron of an artist, once complained to him of charging what appeared to be a large sum for ten days work. The artist replied, "It took me ten years to learn to paint that picture in ten days."

SYMPATHY AND PATIENCE.

Shall we receive a compensation in money for these, asks some of you. Why not? Who of you do not know by experience how completely his whole body may be drained of its nervous forces, by a demand at the chair for a few hours for sympathy and patience, by a young or refractory patient, yet how valuable is it to them, and to all in hours of distress. A visit to a dentist for the first time, is a great event to many. The most who come to us are in pain, or at least are suffering from a nervous dread of our operations; kind words and gentle manners are appreciated then as at no other time. If you are harsh and unfeeling or impatient, you repel them from you, but if you show a delicacy of feeling for their fears, and have soothing words for their sufferings, and are patient with them in their fretful and often unreasonable moods, they will treasure up a kind remembrance of you, which will go far toward removing the disagreeable sensations they experience at your hands, and which you may turn into gold. More than once have I known patients leaving a skilled but harsh operator, to employ one of less skill, but of known gentleness and kindness.

CHEERFULNESS.

This, too, has its value; for many a heavy heart is carried into your presence, which a cheerful grateful word will help to lighten. You need not be frivolous or boisterous, but a well stored mind can gently lead the troubled one to other objects than self for contemplation, and thus may you rob your office of half its terrors.

Let nothing in the display of instruments, anatomical preparations, or in your conversation suggest somber thoughts, but rather let pictures, books, and flowers direct the mind with your help, to something to think of, rather than its present fears.

This quality, then, has especial value to you, because of its peculiar usefulness.

A GOOD ADDRESS.

By this is meant the ability to say the right thing at the right time and place. It is an outgrowth of refinement; however, a person may be truly refined in feeling, and yet lack the ability to express his thoughts skillfully. This is a thing for cultivation. You have golden opportunities while a patient is under your care for treatment, to impress them with the importance of dental surgery and hygiene.

That there is a vast amount of ignorance in the teachings of our science, we well know from daily experience; is it not, therefore, a duty we owe the public, and especially our patrons, to enlighten them? Will we not be public benefactors, if we induce them to take the ounce of prevention rather than the pound of cure?

With the class who *intend* to take proper care of their dental organs, their are probably more teeth annually lost from neglect, than are saved by timely operations. If this is true of those who are comparatively enlightened, what shall we say of the masses who never think or care for these things. Could we secure this last named class for our patrons, our business would vastly increase, besides we would confer lasting benefits on them.

NEATNESS.

What! Coin this into money?

If it is useful in suppling a want, it is valuable.

This is a day of judging by appearances; therefore, appearances can not be neglected.

To use a common phrase, there is money in it. Be scrupulously neat, not only for appearance sake, but for the *virtue* there is in it. Let no bad odors escape from your breath, your hands or your office, else a suspicion is excited against you in the minds of the refined, that will tell against your pockets.

A common maxim is, "Dress bespeaks the man." The discriminating judge, and that rightly, that he who is slovenly in his habits will be slovenly in his operations.

A dentist whose office is furnished neatly or even elegantly, can get larger fees than he can for the same services rendered in dirty, shabby rooms.

Let books, pictures, flowers and works of art, adorn your office, and it will attract the refined classes to you. The shoddy van are attracted by mere appearances, while the crowd follow when these two classes lead.

ARTISTIC TASTE.

By artistic taste is meant that which pertains to the skillful use of form, proportion, beauty, curvature and color.

It is the outgrowth of culture.

The mechanic works by fixed rules, does as he is taught, and the product of his hands is mechanical. In other days, a branch of our business was called, and that rightly, *mechanical* dentistry. Some have not outgrown the idea yet, and are still mechanics, content to work for mechanic's wages. They have no idea of anything going into the product of their hands, higher than mere labor. Agents who have visited every office in the country, report that this class, in some sections, have been obliged to clip expenses, here and there, to make their ends meet, till they are far poorer than ordinary mechanics about them. They have talked "cheap dentistry," till *they have created a demand* for it, and they have also in some instances secured a reputation. Such a reputation, of being CHEAP DENTISTS, with its necessary concomitant poverty, to bless them for their wisdom all their days.

But there is another class who understand wherein their *true* interest is, and have taken a different course. They have cultivated the artistic spirit by long years of study, till they are enabled to breathe that spirit into all they do. Dead blocks of porcelain, by their touch are things of life and beauty, rivaling nature in graceful curves, delicate colors, beautiful forms, and nice proportion. The refined and cultivated appreciate this, and are willing to pay for it. This class make or unmake our reputations. They with all sensible persons, are suspicious of a professedly good article, that is cheap, for fear it has no value.

It is optional with each whether he will bring an artistic product to a good appreciative market, or a cheap mechanical product to a poor market.

ADVERTISING.

This subject does not properly belong to my theme, but being collateral to it, and intimately connected with our own interest, I choose to say a few words on its use.

What collossal fortunes are made by the skillful use of the press. In fact, it is the main element of success with the quack. He blows his brazen trumpet loud and long till the credulous flock to be fleeced. It seems to me that *this is an element worth redeeming from the vicious uses of empiricism.*

If the press enables worthless things to bring such rich pecuniary harvests, should there be any hesitancy in using it to proclaim the merits or make a market for a good thing? There needs to be wisdom used in this as in other things. Mere puffing is of doubtful expediency, but the most fastidious on this subject can not object to the enlightening of the masses on subjects pertaining to our specialty, and to teach them wherein is their highest interest, for their interests are identical with ours in this matter.

Let me suggest that this society offer a prize for the best written tract, or tracts, or books, on subjects pertaining to the care and preservation of the teeth; let the matter be put into the hands of a committee to report at the next meeting of the society, and if they are adapted to the public want, let them be printed under the auspices of this society. Can it engage in a better work? Will it not do more to regulate the practice of dentistry than the best devised laws? Give the public the means of discriminating between the good and bad, and their interests will lead them to the man that will give them the most value for their money.

I will close, by giving you in his own words,

"PAT'S VIEWS OF TOOTH PULLING."

Och, doctor, me darling, just come here a minnit,
I've got a bad tooth, and the divil is in it;
It keeps such a hoppin and jumpin about,
I think on my soul, I must have the thing out.

Och! now *do* be careful; 'tis uncommonly tinder,
Oh! Mother of Moses!! Oh!!! Murther!!!!
Is it out? Faith, I thought you for sartin,
The top of my head from my body was partin.

The sinsation, I say, was uncommonly quere,
As though a big engine went in at each ear,
And met each the other, with a tirrible crash,
Which sent all their fixins to gineral smash.

And now for this torture, I suppose I must pay,
How much is it sir? A half dollar, did you say
It's too much for a half minutes work,
You ought to pay me, 'twas earned with a *jirk*
The blacksmith will pull thirty minutes, and is illing
To pull thirty more, and he'll charge but a shillin.

VALEDICTORY ADDRESS.

BY W. C. STANLEY.

Bead before the Indiana State Dental Society.

GENTLEMEN OF THE INDIANA STATE DENTAL ASSOCIATION:—The precedent has been established, and the practice maintained, which leads us to expect something by way of valedictory from the retiring president, before giving up to his successor in office, the post of honor.

Yet, in view of the fact that we have distinguished visitors with us, who have come here from love of the profession and a desire for its advancement, and to whom we are all anxious to listen—I would do injustice to my own feelings and to you, did I continue my remarks to any considerable length at this time.

It has rejoiced me to meet once again with you—to see the kindly smile of recognition of those who have so often met before on such occasions as this, and to feel the warm grasp of the hand of those who never knew the feeling of professional jealousy, but who meet every one who has chosen for his life work, the profession we love so well—and is seeking with earnest purpose to fulfill his mission faithfully, as a brother, and bid him God speed on his way.

Twelve years ago, I was present at the organization of this association, then a student of but a few months, and nothing but sickness has ever kept me from being present at its annual meetings.

At our second meeting, our esteemed friend, Dr. Knapp, was chosen chairman, and I well recollect with what warmth and earnestness in his valedictory the succeeding year, he urged upon us the necessity of making thorough preparation for the work before us.

I had, I confess, chosen this calling without any just conception of its responsibility or its capability. I did not know there was such a thing as a dental college in existence, I knew it had some literature, but not its extent. Nor was I alone in this ignorance. After my determination to become a dentist was fixed, I confided my plans out of defference, to our family physician, a man who stands now and stood then, second to but few in his own profession in our State. He sought to discourage me from my purpose, and from his remarks, I feel sure that he was as entirely ignorant of the fact that there was a *dental* profession in existence as myself. And though I had made *some* advance before first attending the association, the spirit exhibited, the earnest words of counsel and encouragement given, then opened a new field of thought to me, and gave me enlarged views of the character and dignity of my chosen profession. And however far I may have fallen short of fulfilling worthily its responsible duty—what little of success I may claim, I attribute in no small degree to the spirit infused on that and similar occasions.

In looking over the progress of dentistry for the last decade, we find much to commend—much to encourage us to persevere in our efforts towards perfection; yet, we regret to be compelled to admit that the progress falls far short of what it should be. Quackery and empiricism are yet abroad in the land, and seem to have secured a new lease of life, for they have never shown a more unblushing front than now. And the question arises, How shall we hold them in check and protect the people from their influence?

Legal enactments are generally conceded to be the *only* means for doing this—poisonous, noxious plants, thrive side by side with the useful and beautiful, and in the same soil, and experience has shown that to stimulate the growth of the good, does *not* eradicate the bad, but the principle of extermination is applied, and beauty and plenty are the result. So it is in professional life, side by side with our colleges, will thrive ignorance, as debasing quackery, as unblushing as can be found in any part of the country, and this must ever be the case so long as intelligence is not diffused among the masses, for being incapable of distinguishing the good from the bad, they go to those who promise most.

But how are we to secure legal protection? Our legislators will be slow to grant that for which so few ask, while the many are indifferent or opposed.

And this brings us to recognize the fact that we need to have identified with us, a larger numerical force—we need to draw into the current of progress a larger portion of the rank and file of the profession. And yet our accessions must necessarily come from the indifferent—from those who have heretofore kept aloof from us, but whose hearts are right, and who need but to be aroused to the consciousness that they are needed in the battle against the wrong, to bring them along with us.

It is an old truism that in union there is strength—this is only true when there is at least a minimum of strength in the individual members composing the union, and not otherwise. Hence, we see the necessity of guarding well the entrance to this association, that nothing may enter to mar the good work. But there are, I have no doubt, many good and true men who would give strength and influence to this association, who ought to be with us on this and all such occasions.

How shall we reach them? The solution has been hinted at by another than myself, but accords with my own view, and seems to me full of force and worthy of our consideration.

It is to send laborers into the field—men whose hearts are in the work, and who are qualified both to instruct and inspire, for such *only* need we send, whose duty it shall be to organize local societies by calling meetings of the profession in different localities, and while laboring to enlighten them in other duties, let them not fail to preach the gospel of professional charity and brotherly kindness. Thus, I think, the discordant element may be harmonized, and the jealousies which result from non-intercourse will be removed.

And these local societies, once established, can but result in good—for once getting a foretaste of the good things in store for these who truly seek the right, they will be loth to return to their old way, and year by year new members would come up from them, to this association, full of warm and earnest spirit, the result of personal contact with warm and earnest spirits, and will willingly lend a helping hand to help forward any good work—and thus, I doubt not, may be secured the legislation so much needed for the protection of both the profession and the public.

DENTAL JOTTINGS.

BY H. L. SAGE.

Alveolar Abscess with Necrosis of the Maxilla.

October 26, 1870. Miss O. N., a young woman of Scotch and Irish parentage, bilio-lymphatic* temperament, called with the intention of having the second left superior bicuspid extracted, and replaced by an artificial substitute; also, the root of the first bicuspid.

On examination, a fistula was discovered over the root of the former; otherwise the gums presented as healthy an appearance as they usually do when thus affected, and the tooth being of good quality, firm, and not badly decayed, the treatment of the abscess was advised and consented to.

An amalgam filling in the anterior approximal surface, which had been inserted by a neighboring dentist, about four years previously, was removed, and an opening found leading into the pulp cavity, which was empty.

The patient could not inform me, whether the pulp was destroyed previous to the insertion of the filling, or not. The trouble commenced to be *painfully* apparent, about two years after the tooth was filled, but was not noticed prior to that time. Either the pulp was dead at the time of filling, or was nearly or quite exposed.

The ultimate result, was alveolar abscess and necrosis of the maxilla.

The gums had recently swelled, but the swelling had subsided. The usual treatment was resorted to, and the abscess thoroughly cauterized *once*. This was done by cleaning out the pulp canal, and introducing a hypodermic syringe, loaded with a proper quantity of creosote into the root, and hermetically sealing the cavity about the point by filling it with a batter of plaster, which was allowed to harden, and then forcing the creosote through with the piston.

The medicine disappeared, but none of it came to the surface, through the fistula in the gum, as it was expected would be the case. The inference, therefore, was that the destruction of the alveolus by the abscess was considerable.

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* Though the bilious and lymphatic temperament are said to be opposites, yet they may exist together, one preponderating over or controlling the other.

As the patient complained of a burning sensation, it may be, that some of the creosote found its way into the antrum.

The application was made November 2d.

The patient afterwards called several times.

The gums became inflamed and livid, and the tooth very loose, and also the adjoining cuspid. There was very little if any pain.

An endeavor to reduce the inflammation was unsuccessful. It being feared by the appearance, that the antrum might become involved, the second bicuspid, together with the remnant of the root of the first, was extracted.

December 2d. Patient again called. On examination, much pus was found oozing from the sockets where the teeth had been extracted, and the cuspidatus was very loose. Extracted this with my fingers.

A large sequestrum of dead bone, embedded in the gums, but entirely detached, was removed. The piece extracted extended from the alveolus of the first molar anteriorly, to that of the lateral incisor posteriorly, and composed the sockets of the cuspidatus and of the first and second bicuspids, including a portion of the floor of the antrum, $\frac{1}{4}$ of an inch in diameter.

The length of the sequestrum, was $\frac{7}{8}$ of an inch; width, $\frac{5}{8}$; thickness, where not destroyed about $\frac{1}{4}$ of an inch. On the lingual portion, commencing $\frac{1}{4}$ of an inch above the inferior surface, it had been destroyed, leaving probably, one-half of its thickness.

The remaining teeth were firm. The opening into the antrum, over the root of the affected tooth, (second bicuspid) was at least one quarter of an inch in diameter.

The antrum was syringed with tepid water, and a weak solution of the chloride of zinc.

February 7, 1871.—In about two months, the patient again made her appearance. There had been some discharge from the antrum, through the natural opening, of a light-colored, thin, and rather offensive fluid, which had entirely ceased about ten days previously—and the parts from which the sequestrum was taken, were looking quite healthy.

The opening in the floor of the antrum was closed, but the lips of the chasm, on the lower portion, though lapped together, were not entirely united. By scraping the edges the desired effect was produced.

The features suffered no deformity, and the loss was made good by the insertion of a rubber plate with teeth attached.

The cause of the necrosis is somewhat obscure.

Though no unusual inflammation of the gums was apparent when the case was first seen, or at least, not enough to excite observation, it is probable that the maxilla was in process of decay—dead or dying—only needing a little irritation, to produce acute inflammation, and cause speedy detachment of the sequestrum.

It is not reasonable to suppose that a single application of creosote would, of itself, produce inflammation and necrosis, and that the process of inflammation, death and separation of the bone, would be accomplished in the space of one month. If the cause was not constitutional, or produced by a blow, of which there is no evidence, then in the absence of other known causes, it must be attributed to the abscess.

There is another idea in this connection: if the use of creosote and other caustic and irritating agents, or what would be *considered a judicious use*, would constitute a danger, by its occasionally finding its way into the antrum, and producing inflammation of the lining membrane, then this danger would arise in the treatment of alveolar abscess in connection with the bicuspids and molars, if their roots pierced the floor of that cavity, or the destruction of bone was so extensive as to permit the entrance into it, of the agent employed for the cure of the abscess. Whether it would or would not, it affords a hint for the exercise of care in the treatment of these teeth, under such conditions.

Proceedings of Societies.

MINUTES OF THE 13th ANNUAL MEETING OF THE INDIANA STATE DENTAL ASSOCIATION.

The association met at the rooms of the Horticultural Society, in Fort Wayne, June 27th, 1871, at 10 o'clock A. M.

President Wm. C. Stanley in the chair.

Members present—J. W. Ellis, J. K. Jameson, P. G. C. Hunt, W. C. Stanley, A. O. Rawls, Isaac Knapp, J. W. Hollingsworth, E. Snider, Jno. F. Johnston, G. W. Loag, Merritt Wells, J. D. Brown, A. M. Moore, Seneca B. Brown, W. H. Gilbert, E. V. Burt, Jno. Crume, S. J. Kirk, W. E. Driscoll, C. C. Burns.

Minutes of last year's meeting were read and approved.

The chair appointed the following Board of Censors—J. K. Jameson, J. D. Brown and E. Snider.

The following persons, having passed a satisfactory examination before the board, were by separate ballot, elected members of the association—Wm. L. Andrews, John Glenn, Burt P. McDonald, W. A. Martin, Charles Manor, Edward H. Creditor, J. R. Clayton.

The Treasurer being absent, J. W. Ellis was appointed Treasurer *pro tem.*

On motion, adjourned to meet at 2 o'clock P. M.

AFTERNOON SESSION—FIRST DAY.

President Stanley called the meeting to order at 2½ o'clock.

Minutes of morning session read and approved.

On motion of Dr. Knapp, Prof. W. H. Atkinson, of New York; Dr. C. Palmer, of Warren, O.; Dr. Barkley, of

Pittsburg, Pa.; Dr. Barkley, of Ohio, and Dr. Cravens, of Kansas City, Mo., were elected honorary members.

The 1st subject, "What are the Conditions of a tooth which will justify its Extraction," being in order, Dr. Jno. F. Johnston having prepared a paper on the subject, read the same, which received a vote of thanks from the association, and a copy requested for publication. Profs. Atkinson, Moore and Taft, and Dr. Knapp, occupied the remainder of the session in the discussion of Dr. Johnston's paper.

On motion, adjourned to meet at a quarter before 8 o'clock P. M.

EVENING SESSION—FIRST DAY.

President Stanley resumed the chair at 8 o'clock.

Dr. Snider made some remarks upon the subject in order, when on motion, the discussion was closed, and the second subject, viz: "Treatment of Exposed Nerves" taken up. Dr. Atkinson made a strong appeal for saving all nerve pulps alive, whatever their condition of exposure. Drs. Rawls, Taft and Knapp, occupied the remainder of the session in the discussion of the subject, all condemning the destruction of the nerve pulps in teeth.

The President appointed Profs. Moore, Taft and Atkinson, to operate at the clinic on the following morning. Adjourned.

MORNING CLINIC—SECOND DAY.

The Professors appointed to operate, were promptly on hand at 8 o'clock, each having their patient in the chair. Prof. Atkinson selected a large posterior proximal cavity, complicated with the crown in an inferior molar; nerve exposed, and gave the association the advantage of witnessing his original and superior manner of filling the same.

Prof. A. M. Moore selected a most difficult case—that of restoring an inferior bicuspid, the posterior half of which was entirely gone. This he accomplished in his usual masterly way, after close application for nearly three hours, much to the admiration and enlightenment of the Society.

Prof. Taft filled a complicated crown cavity. Much benefit is *always* derived from his clinical operations; and the interest manifested at his chair showed this to be no exception.

Most prominent among the new appliances at the clinic, was Dr. Carpenter's Pneumatic Burr Engine. And the numerous orders given for the same, was tangible evidence of the enthusiastic reception the above piece of wonderful mechanism met with, at the hands of the assembled dentists of Indiana.

AFTERNOON SESSION—SECOND DAY.

The President called the association to order at 3½ o'clock.

Secretary read the minutes of the previous session.

The subject of the "Treatment of Exposed Nerves" was resumed. Dr. Taft opened the discussion, pleading earnestly for more faith in treating these cases. Drs. Snider, Rawls, and Knapp followed. Prof. Atkinson said that he congratulated himself, that he heard fifty dentists in the Hoosier State, discussing those deep principles of physiology and pathology, and thus laying solid foundations for future achievements. He plead for the respect of individual judgment in these cases, denying the power of one to dictate to another, it matters not what his position may be; he stated that there were no two cases in this class alike, and each one stood alone *sui generis*, and must be diagnosed and prescribed for by itself.

On motion, the society adjourned, to meet at 8 o'clock, in the room of Circuit Court, for a public discussion.

EVENING SESSION—SECOND DAY.

The association convened at 8 o'clock P. M., pursuant to adjournment, in the rooms of the Circuit Court, to which the public had been invited to listen. The 4th subject in the order of discussion was here taken up, namely, "Can the Decay of Teeth be Prevented."

Prof. Taft opened the debate, taking strong grounds in the affirmative of the question.

He traced the causes of decay to almost every physical irregularity, to careless and vicious habits as regards health, and to neglect of proper care by the young. Every disease, even those apparently the farthest removed from apparent connection with the teeth, has a greater or less effect upon these organs. He made a very earnest plea for increased attention to children's first teeth.

Prof. W. H. Atkinson followed. He took as his text, "Live Godly, Soberly and Righteous Lives," and PREACHED a masterly discourse, setting forth vividly the great duty of redemption of the body, and thus paying due respect to our Creator.

At the conclusion of Dr. A's remarks, the association adjourned, until 8 o'clock the following morning. Dr. Atkinson having been appointed to hold a clinic at that hour.

MORNING CLINIC—THIRD DAY.

Prof. Atkinson conducted the clinic agreeable to appointment. The operation was that of removing accumulations of lime from the teeth, (wrongfully called tartar). After removing as thoroughly as possible with instruments, aromatic elixir of vitriol was applied to dissolve remaining particles, care being taken to protect the teeth. During the operation Dr. Atkinson explained to the association, his treatment to restore the wasted tissues, both bony and soft, and many other valuable hints in regard to cleansing teeth.

MORNING SESSION—THIRD DAY.

The President called the association to order at 11 o'clock. After the reading of the minutes of last session, the regular order of business was, on motion, set aside, and "Miscellaneous" taken up.

On motion of Dr. Johnston, a Committee on Appliances was appointed by the chair, consisting of Drs. Moore, Knapp and Hunt.

Dr. Hunt moved the Financial Committee authorize the Secretary to draw upon the Treasurer, for funds to defray all necessary expenses attending this association. Carried.

On motion of Dr. Knapp, the association proceeded to the election of officers for the ensuing year.

The election resulted as follows:

President—Dr. P. G. C. Hunt, of Indianapolis.
1*st. Vice President*—A. O. Rawls, of Connersville.
2*d. Vice President*—Wm. L. Andrews, of Kendallville.
Secretary—Burt P. McDonald, of Goshen.
Treasurer—Isaac Knapp, of Fort Wayne.

Indianapolis was selected as the next place of meeting.

An Auditing Committee, consisting of Drs. Johnston, Burt and S. B. Brown, having been appointed, made their report through their chairman, Dr. Johnston, on the finance of the society, which was accepted and the committee discharged.

The thanks of the association were then tendered to the dentists and citizens of Fort Wayne, for their kindness and hospitable attention to the association while in session.

On motion, Dr. E. R. E. Carpenter, of Chicago, and Dr. John L. Scott, of Defiance, Ohio, were elected to honorary membership.

The association then adjourned until 2 o'clock P. M.

AFTERNOON SESSION—THIRD DAY.

The association convened at 2 o'clock. President Stanley in the chair.

The Committee on Appliances, through their chairman, Dr. Hunt, made their report. The pneumatic burr, drill, file carrier, polisher, universal joint, and automatic mallet, received their entire approval.

On motion, the report was accepted, and committee discharged. Prof. Atkinson, wished to add his testimony in the strongest terms in favor of the Carpenter Pneumatic Engine, and took the position that no dentist doing even a moderate business, could afford to do without it.

President Stanley, retiring from the chair, delivered his address, and as his last official act appointed Drs. Moore and Jameson, to conduct the President elect, Dr. Hunt, to the chair. He accepted the honor in a brief address.

President Hunt then announced that the third topic for discussion, "Filling Teeth," (proximal cavities of bicuspids) was in order.

The discussion upon this subject was participated in by Drs. Atkinson, Taft, Palmer, Knapp and Rawls.

Dr. Palmer, of Warren, Ohio, concluded the discussion on the subject, giving the association the benefit of his wonderful skill, and system in filling teeth. He also exhibited fillers of his own make, which were models of beauty and perfection.

On motion, the regular order of discussion was dispensed with, and the "Miscellaneous Business" taken up.

The Secretary read communications from Drs. Geo. W. Keeley, of Oxford, Ohio; G. A. Mills, of Brooklyn, New York, and A. T. Keightly, of Green Castle, Ind., who expressed their regrets at not being able to be present, and extended their best wishes for a pleasant gathering of the association. Also a paper from Dr. W. F. Morrill, of New Albany, now traveling in Brazil, on the subject of "Dentistry in Brazil."

President Hunt appointed as Executive Committee for the ensuing year, Drs. John F. Johnston, Wm. L. Andrews and E. V. Burt.

Dr. Knapp read a proposition from Dr. A Wells, of Fort Wayne, offering for a consideration, to give to the dentists of the United States, what knowledge he possesses of the construction, repairing, etc., of "porcelain work."

Dr. Johnston, moved the proposition be given publicity in the DENTAL REGISTER. Carried.

Miscellaneous business was concluded, and the fifth subject, "Ethics" taken up, and an essay from Dr. E. M. Morrison was read, which received the thanks of the society and ordered published. Also the paper from Dr. Morrill and Dr. Stanley's address.

The association then adjourned, to meet in Indianapolis, the last Tuesday in June, 1872.

SENECA B. BROWN, *Secretary.*

To the Indiana State Dental Association, now in Convention at Fort Wayne:—The undersigned would respectfully submit the following proposition, to wit:

That if the said convention, or the dentists of the United States, will raise him $1,000, he will instruct any practical dentist designated, in all the particulars, how to make and set and mend the sets of porcelain teeth, the same as he makes and sets and mends them; and also to make all the materials and enamels that he uses in doing the same. He would also request permission to state the opinion that to know how to mend the said porcelian teeth and plates when broken, would be of more value to the world than the amount mentioned.

All of which is respectfully submitted.

A. WELLS.

EXTRACTS FROM PROCEEDINGS OF THE FOREST CITY SOCIETY OF DENTAL SURGEONS, CLEVELAND, OHIO, JUNE 6th, 1871.

The society was called to order by the President, Dr. C. R. Butler. The election of officers for the ensuing year resulted as follows:

President—C. R. Butler.
Vice President—B. T. Spelman.
Recording Secretary—H. L. Ambler.
Corresponding Secretary—C. Buffett.
Treasurer—L. Buffett.
Councilmen—Drs. Palmer, Harroun, Slosson.

The President remarked that he felt much honored, and was under great obligations to the society for a re-election, hoping that he might ever prove faithful to his charge. This society is a united and brotherly one in every sense of the word, and it is good for us that such is the case; and even as a profession, we are acknowledged to be more social and fraternal than our medical brothers. In conversation, a dentist should not be confined entirely to professional matters, but let him take time to gain a general scientific knowledge; thus fitting himself, to fill in a creditable manner, any position which he may be called upon to occupy.

We should teach patients that ours is a science, an art, and a profession—not a mere trade. Ten years ago, a physician seldom, if ever, thought of calling a dentist for consultation with him; but now they are often found consulting together, and we regard it as only just and proper to give each his deserved position. Be on such good terms with your brothers, that should you have a difficult case, you feel at perfect liberty to call one of them to consult with you. Such a proceeding gives a patient greater confidence, they think you are really trying to do them good; thus may you help show them, that the diseases of the teeth and mouth are not of such trivial importance, that any tyro may treat them successfully. We may congratulate ourselves, that in our specialty, such great progress has been made during the last few years, and that a more thorough education of men for the profession is demanded and recognized by the people, as well as by those of our profession, who are ever ready to elevate and maintain a high standard in practice. Now, brethren, however much has been done in the past, we should not forget that much is required of us in the future; therefore, let us ever be zealous in well doing, that it may be said of us our part in the great work was well and faithfully performed.

Dr. Slosson remarked that those about to enter the profession, should have a good general education upon all scientific subjects, and be able to converse knowingly upon them, and especially should we aim to instruct the mass of people.

H. L. Ambler remarked that he had published in the *Ohio Farmer*, a weekly paper, a series of articles on "Preservation of the Teeth," believing this to be one of the best ways to educate the public, and bring them to a high appreciation of our science. Thinks that the main reason why more articles in regard to our profession, have not appeared in public papers, is because the publishers wanted pay, not deeming such matter of general interest enough to warrant them in putting it into their columns. However, such ideas, are fast becoming dissipated by the progress of dental surgery. Has also for the last three years, produced before the State Institute of Homœopathy, essays upon the importance of our specialty, and its close alliance to the practice of medicine. His last production, in the way of an artificial nose, was the restoration with pyroxiline, of the portion corresponding to the right ala.

Dr. Harroun related a case of diseased lower jaw, with a fistulous opening under the chin, caused by the growing together and ulceration of two roots, which by exostosis became firmly imbeded in the substance of the maxilla. Also said that he was still making a specialty of producing artificial obturators, and desires brotherly influence in sending him cases. Thus far, he has never seen a case of inflammation resulting from such fixtures made of rubber.

Dr. Butler described a case where all the superior teeth were removed, and the patient had been wearing an artificial denture for years. There had been a discharge of pus from the anterior alveolar ridge for some months. A "capital" operation had been advised by examining surgeons, but finally, he administered an anæsthetic, made an incision and inserted a probe, striking a hard body, which was at once diagnosed as a tooth; being easily removed with a pair of small forceps, it was found to be a cuspid, which was imbedded horizontally in the alveolar arch. The tooth was of good fair size, with the enamel partially denuded.

Dr. Butler described four difficult cases of irregularity, remarking that you should use as simple fixtures as possible, and do not be anxious to move the teeth *too* fast. Bands of pyroxiline are preferable to any metallic substance, as you can shape it quickly to any case; the color is good, and there is just spring enough to give the teeth a moderate pull, such as you desire. Rubber rings and silk ligatures are used to place around the teeth for tension; the rings should be made wide to prevent their slipping under the gum, as narrow ones are liable to do; the rubber helps separate the teeth, and gives them something of a chance to come into a good position. Often puts in a stay plate to assist the band; sometimes drilling holes in it, putting in boxwood pins in order to get pressure on certain teeth. All cases must be left entirely to the operator's care, giving patients to particularly understand, that should they have any trouble, to come immediately to him. Always make definite engagements, so that you may be able to note the progress of the case, and do not talk to them as if it was of little importance whether they attended faithfully to it or not.

Irregularity is hereditary; for we have seen the same deformity of the teeth, in sister, aunt and cousin; but we believe it can generally be overcome, by carefully regulating for generations.

Dr. Harroun recommends Watt & Williams' metal for stay plates.

Dr. Spelman makes beautiful models, by the use of soapstone on his "plaster Paris." In pivoting teeth, he covers the end of the root with gold, in order to obtain a good joint.

Dr. Palmer exhibited, and showed the application of four beautiful filling instruments of his own manufacture; they are particularly for reaching parts of a tooth most difficult to fill successfully with the use of the mallet. He refers to the posterior lingual cusps, of inferior bicuspids and molars; these are points most difficult to condense the gold laterally and carry it forward, for we should have lateral condensation as we progress in building up lost crowns; also in filling where a good portion of the crown remains, it will be found that here are difficult points to carry the gold directly to the walls. He is in favor of modeling fillings near as possible, to the desired contour, as you proceed, thus saving much time and strength in finishing. The style of instruments, and their adaptation, called out many praise-worthy remarks.

Dr. Butler remarked that thick foil, in his hands, would produce a better edge, and lie up to the thin wall of a tooth, much better than thin foil; nor does it require any more force in condensing. With thick foil you can make a stronger contour filling, and get a better surface with less labor. When you use "coffer dam" you have perfect dryness, and can put in the gold with smooth points if desirable, for they tend to spread or stretch the foil up to the walls. Uses a burnisher considerably in filling or restoring. Fills root canals with os-artificial and fibres of gold as a carrying vehicle, considers it the quickest and best method.

Dr. Spelman read a report on mechanical dentistry, which says, that at present the laboratories of many of our best men are closed, and a great portion of the balance are in a fruitless condition. Those to whom we looked, expecting them to bring out something new and valuable in this department, have left it in sorrow and disgust. It is true that flasks and vulcanizers have been improved, but this adds nothing to the pleasure and comfort of our patients. The time necessary to vulcanize a set of teeth, has been lessened, by adding more sulphur to the rubber, still we fail to see how this makes the rubber stronger or more lasting, or how it makes it less poisonous. The color has been made to please the eye by the addition of mercury, and at the expense of strength. We think there is a desire on the part of patients and the profession, to return to the honored gold and continuous gum work. Since it has been discovered by the more honest of the profession, that rubber is such a miserable thing for dental use, a great effort has been made to discover something else as cheap, and less obnoxious. Thus we have Aluminum, Rose Pearl, Adamantine, Weston's metal, Watt & Williams', and many others, which are superior to rubber; where they undergo no oxidation, they do not act deleteriously upon the general health, or local tissue of the mouth; they are conductors of heat, which is much in their favor. These metals do not contain mercury or sulphur, and can be made thinner, stronger, and less clumsy than rubber; they can also be repaired without injury. Here follows an *extended* compilation of the views of many of our leading men, as expressed in journals and associations, the general opinion being adverse to the use of rubber.

From the American Dental Association: "silver has passed away, and is now almost forgotten. Rubber, too, will soon be no more. The hand writing on the wall 'bespeaks its doom, and predicts for it a reputation for evil which will long curse its memory.'"

Your committee think that the absorption and loss of hard tissue, is the greatest where rubber plates are worn, which probably is owing to the mercury or non-conductile property of the material.

Adjourned, after a pleasant session of two days.

HENRI L. AMBLER, *Rec. Sec.*

Editorial.

CRUDE TEACHINGS.

It is unfortunate when a man who can teach some things fancies he can teach everything. When he has reached this sad state he is usually positive in direct proportion to his ignorance; and, as sound is often mistaken for sense, the most absurd statements are often accepted as scientific facts. Such a man may be honest and sincere, and yet by false teachings, do immense harm, especially if he is cordial and enthusiastic.

We have been led to these remarks by perusing about a page of printed matter, purporting to be the remarks of a friend we highly esteem, who has done much good to our profession, but who has also done much harm by presuming to teach where he has not yet learned. A quarter of a century will not relieve our profession from the evil results of the false teachings of this one individual, who might be useful, and only useful, if content to teach only that which he has studied, or, that he at least understands.

In a late issue we find this *teacher* saying, "The diamond and enamel may both be burned, leaving us their chemical elements," etc. A natural inquiry is, what are the elements of the diamond, and when we know that it is composed of the single element, carbon, and that the sole result of its combustion is carbonic acid, we naturally conclude that the teacher failed to know, or totally failed to impart his knowledge.

With the next breath he tells us, "There is no stone that is not an oxyd of some simple substance." The diamond is an oxyd of what? The beautiful stone called, fluorspar, is *scarcely* an oxyd. Did he forget the fluorides entirely? or had he failed to hear of them? To illustrate that every stone is an oxyd of "some simple substance," he mentions feldspar, which is composed of at least *five* simple substances besides oxygen.

The above is as good as the average of our friend's teaching. In the few sentences, here and there, which can be understood, ither by the speaker or hearer, we find such errors and misstatements the rule, and not the exception. They are asserted with the assurance of inspiration; and if any one ventures to doubt, he is told that the speaker is "going to vindicate the great Architect of the Universe," that "all things differ but in degree," "opthalmazoa," "crystalosophy, cellosophy, corpusculosophy," "differentiated." Of course the doubter pretends to be convinced, fearing to manifest the slightest shade of unbelief, lest the speaker should "marry his intellect and his affections," and in "spontaneity of natural production," the offspring should be a specimen of that "pragmatic pathology" which "includes all the progresses and regresses in the constructions and destructions of the individual (separate) domains of crystalosophy, cellosophy, and corpusculosophy, an exhaustive observation of whose processes will bring within the pale of consciousness all the possibilities of matter and mind."

We have written this much about a friend, and have written it as a friend. We know it will be misinterpreted, and our motives will be impeached, as usual, in some quarters. But we can not afford to be unfaithful to the whole profession, even at the dictates of private friendship. Nor can our profession in America afford to have such a medley of ideas, beclouded by such verbosity, pass for its advanced teachings. W.

EXAMINATION.

One of the important points in the treatment of the teeth, is thorough examination. Is there not with a great many in the profession a very great deficiency in this respect? There may be some, perhaps many, who do not know what is meant by this expression. Does it mean a looking to ascertain if there is decay upon the teeth, that any one who should see the teeth would perceive? Does it mean this and nothing more? Would the physician be regarded as a good diagnostician, who would rest satisfied with the simple observation and knowledge of the fact, that his patient was pale, emaciated and weak, and go no further, and proceed at once to treat the patient, without even an effort to determine the nature of his disease, its depth and strength, its resources and hold upon the patient, and his ability to resist it?

No one of ordinary intelligence and common sense, would wish to place himself, or friend, or even his dog in the charge of such a physician; and yet, the great mass of the people are willing to place their teeth—priceless gems—for care and treatment in the hands of any one who may assume to call himself dentist, though he be as ignorant of what he attempts as the veryist fool.

Any one having a precious diamond or jewel, to be dressed and set, would be exceedingly careful in the selection of him who should do it. The stone would probably be sent hundreds or thousands of miles, to find the best skill for the work. It would amount to very little for the ignorant, inexperienced and unskilled, to procure a grindstone and put out his sign, "Samuel Slick, Lapidary." Samuel would probably starve to death sometime, before *any body*, however simple minded he might be, would venture to place a jewel in his hands for dressing and arranging.

Now every tooth is of more value by far than any ordinary diamond or jewel, and should receive more careful treatment.

These thoughts, and many others, have been suggested by two cases that have recently came under our observation. The one, a girl, fifteen years of age, some three or four weeks ago had her teeth examined by a man who has assumed for the last twenty-five years to be a dentist, and has been in the constant practice of the profession during that time. After making a thorough examination of the teeth, he informed the mother that the teeth were all free from decay and in good condition, but that they ought to be examined every year or two. Now, within ten days after this examination, the teeth came into our care, and there we found twenty-two well defined cavities of decay, nearly all of which were upon the proximal surfaces of the teeth, and but one of them broken down from the crown surface. In four of them the decay had penetrated the pulp chambers. In nearly all the decay was only indicated to superficial observation by a slight change of color immediately over the affected part. Several of the decays were through and beneath the fissures upon the masticating surfaces of the molars and bicuspids, the enamel not broken down in the fissures to any observable extent, and the color but slightly, if any changed. The mother was not satisfied with the first examination, and the latter was made.

Now, in this case, there was criminal ignorance or carelessness, perhaps both. Taking all the circumstances into account, the suspicious might attribute the conclusion of that examination to a motive of not the purest character.

The other case was a gentleman about twenty-five years of age, who had a number of teeth filled several years ago, called upon a professed dentist of many years practice, for an examination of his teeth, and especially of these fillings. After examination had, they were pronounced to be in good condition, the fillings preventing all decay so far as the filled cavities were concerned, at least. After a few days it was our lot to examine this case, and in seven or eight of the ten teeth that were filled, an instrument would readily pass down either through the gold or between the gold and the wall of the cavity, showing decay in active progress in each one, and especially at the entrance of the fissures. The pulp chambers of two of them were penetrated by the decay.

Now in both these cases, the mischief that would have resulted from their examination, would have been irreparable. The tendency in almost every such case would be to lead the patient into a false security, that would result in the loss of the teeth. If ignorance was the apology for the conclusions in these examinations, then there ought to be some criterion by which even the more obtuse could recognize such ignorance and avoid it. But if it be from carelessness, or an inward acquiescence that the teeth be lost, then such persons should be classed with and put upon a level with those reprobates who would do us a like amount of injury in any other respect. They ought to have the seal of condemnation stamped on their foreheads, that everybody might see and shun them. T.

WISCONSIN STATE DENTAL SOCIETY.

This society met in La Crosse, on the 11th and 12th of July. There was not a large number present, but the active men of Wisconsin were there, and worked with energy and efficiency in the cause, and in behalf of their society. It was organized within the last two years, and for its age, is in a prosperous condition. The importance of State Associations, is just beginning to be understood and appreciated. State societies elicit the attention and interest of all the members of the profession in a State, to a greater extent, and more definitely, than any society of a more local character could do. Every enterprising, thorough going dentist, will feel himself called upon to enter and work with his State society, knowing that there he has a far larger sphere of usefulness than he could have in a small territory. The legitimate work of a State society will embrace all that can be done in a local society, and much more; it will or should in some sort take cognizance of the profession in the entire State, and labor for its well-being and advancement. It should make its influence felt by all of the profession in its domain.

Every State society should make a clear, unmistakable and strong expression upon the subject of professional education, one that would be regarded by all interested. It is proper and desirable for State societies to take such action as will give to the public a clear understanding of all things pertaining to the preservation of the teeth, and the capabilities of the dental profession to relieve from these difficulties, into which all to a greater or less extent sooner or later fall.

Another very important work of State societies, is the adoption of such measures, as shall discountenance, and if possible suppress quackery. All the definite means of progress tend in this direction; all are not alike prompt and decisive, however; something that shall be eminently vigorous and efficient is called for in the present state of affairs, and nothing would seem to promise more in this direction, than good, wholesome laws, that should encourage and sustain the good and upright, and discourage, prevent or punish, the dishonest and incompetent.

Another work in which every State society should engage, is the establishment of a normal institute, whose session of a few days each should be held at stated periods, and at places that would best accommodate those who are to avail themselves of its benefits. Such institutes should be conducted by some competent person or persons appointed by the State society, and for the benefit of practitioners who might choose to avail themselves of it. Such institutes would not operate in any sense against, nor take the place of dental colleges; but rather be co-operative with them, and aids to them. Now, these are some of the ways in which State societies may work great good for the profession. There are others of which we may speak hereafter. Some of these things the Wisconsin society has already taken up, and are acting upon, and others doubtless in due time will be taken up. We long to see the time when every State in the Union will have its dental society, each of which shall be instrumental in building up the art and science of our profession, and maintaining its honor. T.

AMERICAN DENTAL ASSOCIATION.

This association met at the appointed place—White Sulphur Springs—on Tuesday, the 1st of August, and as was anticipated, had a very small attendance. The place is only reached by one railroad, and that a long one, almost one hundred miles before making any other railroad connections with the outside world. The place is a pleasant one in many respects, but a very unfortunate one for such a meeting. The meeting was perhaps as good in the work accomplished as could have been expected, but it fell far short of what should have been done. It followed in the old beaten path of former meetings; considering and discussing, practical and theoretical details that ought for the most part to be learned during a good pupilage, or at most, in a thorough college course. There seemed to be an utter aversion to taking up and considering the great principles that underlie the progress and development of the profession as a whole. The education of those who are yet to enter the profession: The future development and education of those who are now in it, by the various means at the command of such a body, such as the encouraging and fostering local associations, the introduction of lectures and clinics for the profession: Securing definite legal recognition of the profession, such as shall encourage and stimulate the good and honest, and restrain the bad, and protect the public against imposition and abuse. On these subjects and others that might be named, this association ought to give an utterance that would make its impress upon the profession everywhere.

These weighty matters should be attended to, and the others not neglected. This body ought to be, and is for the most part, made up of the representative men of the profession, and their time ought not to be frittered away while in council assembled, upon minor things that should be confined to local societies; such as clinics in minor operations, the exhibition of instruments and appliances; and most decidedly objectionable is it for members of the profession, and particularly members of the body, to bring instruments and appliances for exhibition and sale, and thereby call off the attention of members from business that legitimately belongs to the association. To such an extent has this been the case at the last few meetings, that it was almost impossible to get any committee, however important, together, and retain them long enough to do any business; so that nearly all the business is done in a slipshod, and imperfect manner, and some committees wholly neglect or disregard their work. And especially are lion baths to be discarded hereafter.

Now we hope that the American Dental Association, will arouse itself to the dignity and importance of its position, and go promptly forward in the performance of the work that it has before it, and is so urgently demanded by the profession. T.

OBITUARY.

Died—At the residence of her parents, Riverside, on the Cincinnati & Indianapolis railroad, August 3d, 1871, Sallie, infant daughter of Dr. William and Rebecca Taft, aged 18 months.

Death, at no time, a welcome visitor, seems most unwelcome in the season of infancy, when the tender bud is beautiful and full of promise.

The special claims of infancy upon the affections and devotion of the heart, are enhanced by the utter dependency and innocence embodied in the little creature that can only look its simple desires, but when the early blight falls upon it, and all that was invoked for its care and protection, is turned to bitterness and disappointment, the consolations of religion only can heal the wound that death inflicts, because the soul is lifted into companionship with the blest, and glimpses of the Eternal rest and union are granted by the merciful Father, who pitieth all those who love Him.

THE

DENTAL REGISTER.

Vol. XXV.] OCTOBER, 1871. [No. 10.

Communications.

ARE THE MINERAL ACIDS FORMED IN THE MOUTH?

The author of this article in his reply in the March number of the Register, 1871, charges me with unfairness in the way and manner in which I made use of his paper to serve some purpose entirely different from the original intent.

If such be the case, I was certainly unconscious of such intention. Neither did I intend my criticisms to be carping in any respect, or discreditable to the writer. Neither were they aimed at the chemical formulas—only brought in incidentally. Now, according to Fowne's edition of Chemistry, of 1870, his formulas were mainly correct, there being only two incorrect, and they may have been misprints. My criticisms were in accordance with Youman's edition of 1870, and Fowne's edition of 1867, and all other text books published five or six years since. Fowne's edition of 1867 and Youman's edition of 1870, have been my principle text books for the last three years.

His formula $CaO_3\ C + {}_2HNO = Ca_2\ NO_3 + CO_2 + {}_2HO$ is certainly incorrect, in so far as he only gave one equivalent of Ca first, and ended with two equivalents of Ca. They should both be alike.

His formula $SO_2 + 2\ H_2\ OH_2\ O_4\ S + 2H$ is certainly incorrect. I can not see how he can make use of eight equivalents of H in sulphurous acid, sulphuric acid and water, according to Fowne's edition 1870, or any other work on chemistry.

The writer speaks of the atomic theory as though it was of but recent origin, and had been adopted within the last ten years. The author of this hypothesis, Dr. John Dalton, died in 1844, though he lived to see his new theory universally adopted.

He began this theory in 1803, and published it in the first volume of his *New System of Chemistry*, in 1807, the second volume was published in 1810.

This theory was early investigated and sustained by Drs. Wollaston and Berzelius, who first gave it authority. All the text books since that time are based on that theory. Hare's Chemistry, edition 1840; Kane's edition, 1849; Draper's 1856, contain it, and all others too numerous to mention here.

The author says he has no disposition to enter into a controversy with the writer upon what constitutes a mineral acid, and goes on to give his explanation to the effect that the salts of nitric, hydrochloric, and sulphuric acids, are regarded as minerals, in contradistinction to other salts or compounds. This may be the proper and only distinction. But suppose we take calcium acetate, ferrum acetate, ferrum tartrate, ferrum citrate, calcium oxalate, ferrum prussiate, potassium prussiate, and many others where an organic acid unites with a metalic oxide to form a salt. Are not the above regarded as minerals? They certainly are, as their metallic base determines them to be such; still these facts do not make an inorganic acid a mineral acid by any means. The main difference in the new theory from the old, consists in expressing equivalency in volume instead of weight atomic.

Weight and volume are both equally important. Eight ounces of oxygen and one ounce of hydrogen, by weight, make nine ounces of water, and always will. Two volumes of hydrogen and one volume of oxygen, make two volumes of watery vapor, or one molecule of water, equal to three volumes. Hence, atomic volume and atomic weight are still understood as before. It will be seen further on, that the elementary equivalency have all been retained without any change, with two exceptions, which are new and old both. The equivalency of water is not given as 3, according to the volumes of gases that form water. Instead, 9 or 18 is still its equivalent—not H_2O equal 3. According to double atom elemental idea as H = 2 H and O = O, we could have for water 4 atoms of H and 2 of O, making 6 atoms in a molecule of water, but it is not so expressed. The language in chemistry has changed materially, while weights and measures or volumes are the same mainly.

The following pages may not be uninteresting to those who have a taste for chemistry:

Boston Journal of Chemistry, May number, 1870. I will give some extracts from the editor's article on the new nomenclature, the article being too long to copy in full.

Says: "In the *Hand Book of Chemistry*, by Messrs. Rolfe & Gillet, we are pleased to find the new nomenclature. It is also found in Roscars *Elementary Treatise*, which we recently noticed."

"It is a singular fact that the main features of this new nomenclature, are not new, but were proposed by Berzelius, half a century ago." "Such terms as ferrous oxide, and ferric oxide, ferrous sulphate, and ferric sulphate, which many imagine to be the invention of the more progressive of living chemists, were first used and advocated by him."

"Nitrous and nitric, sulphurous and sulphuric, have become familiar, as expressing different degrees of oxidation in the case of the acids," and Berzelius wished to apply the same principle of naming the bases and salts.

"Ferrous oxide is more concise than protoxide of iron, and ferric oxide than sesquioxide of iron, and ferrous sulphate is for the same reason better than the protosulphate of iron, and ferricsulphate than sesquisulphate of iron."

"Moreover, as the names ferrous and ferric are derived from the Latin, they will have essentially the same forms in all modern languages, and an approach is thus made to a universal nomenclature."

"Under this new Berzelian method, the names of all the binary compounds are formed in the same way, from their constituents; the name of the electro-positive constituent with the ending, *ic*, being placed before that of the electro negative constituent, which is made to end in *ide*."

"Thus potassium and sulphur, form potassic sulphide, formerly sulphide of potassium, and at an earlier day, sulphuret of potassium; sodium and oxygen form sodic oxide, formerly soda, or oxide of sodium; silver and chlorine form argentic chloride, chloride of silver; lead and iodine, plumbic iodide, iodide of lead, and so on."

"When the same elements form two compounds, the one containing the smaller proportion of the negative element, is distinguised by changing the ending of the name of its positive constituent to *ous*, the ending *ic* being used for the compound containing the larger proportion of the negative element. This is illustrated by the names ferrous oxide, and ferric oxide, of which we have spoken above."

"In the same way we have mercurious and mercuric oxides, cuprous and cupric oxides, of copper; stannous and stannic chlorides, chlorides of tin, etc."

"Calomel is mercurious chloride, and corrosive sublimate is mercuric chloride, and so on."

"When a binary compound contains oxygen, and becomes an acid when united with water, or a salt when united with a base, it is termed an anhydride. Thus one atom of oxygen and two of sulphur, form sulphurous anhydride, formerly sulphurous acid; one of oxygen and three of sulphur, sulphuric anhydride, sulphuric acid."

"The old names are given to the true acids, or the compounds of these anhydrides with water"

"We no longer need use the absurd name anhydrous sulphuric acid, to describe a substance which has no acid properties whatever, and when we speak of sulphuric acid, there can be no doubt which of the two compounds is meant."

"The hydrogen acids or hydracids, are named in the same way as other binary compounds. Thus muriatic acid is hydric chloride, hydrosulphuric or sulphuretted hydrogen, or sulphide of hydrogen, becomes hydric sulphide." "We should not generally speak of water as hydric oxide, any more than we used to call it protoxide of hydrogen."

"The reader will have no difficulty in applying the rule for naming binary compounds to the interpretation of the names of ternary compounds, such as argentic nitrate, sodic phosphate, calcic carbonate, carbonate of lime, plumbic carbonate."

"We will only add that this nomenclature has been adopted by the Chemical Society of London, and is coming to be generally used by the best modern authorities. Some recent writers have adopted thus far only a portion of the system; but consistency and the force of the current will doubtless soon compel them to adopt it in full. A man who persists in speaking of lead nitrate, and sodium sulphate, while he does not hesitate to say ferrous sulphate, or ferric sulphate, is pretty certain eventually to exchange his mixed nomenclature, for a uniform one."

The above, by the editor of the *Journal*, must be admitted by all who are familiar with chemical science, to be a clear and lucid paper on the new nomenclature in relation to the new language proposed. The symbols pertaining to the new order of things, it will be seen farther on, have undergone but little variation, and only in a few instances, which I shall give in full detail.

"In Youman's New Chemistry, edition 1870, may be found many of the latest symbols and formulas as given by Gerhardt and Laurent." Page 274.

OLD VIEW OF ACIDS.	NEW VIEW OF ACIDS.
Phosphoric acid, HO, PO_3	H, PO_6, analagous to H, Cy
Sulphuric acid, HO, SO_3	H, SO_4, " " H, Cl
Nitric acid, HO, NO_5	H, NO_6, " " H, Br

Same page—"Hence we arrive at the following definition: An acid is the hydrogen compound of a simple or compound radical which possesses the power of neutralizing bases, its general formula being HR, hydrogen and radicle."

Same page—Later view of Salts—"From this point of view the composition of salts is also simplified; one type of acids gives us also one type of salts. By replacing the hydrogen of chlorohydric acid, HCl, by sodium, we get common salt, NaCl."

By replacing the hydrogen of cyanohydric acid by potassium, we get the salt cyanide of potassium. KNC_2.

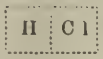
And so by replacing the hydrogen of sulphionide of hydrogen by iron, we get sulphionide of iron, $FeSO_4$, instead of the old sulphate $FeOSO_3$.

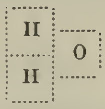
"On this view we may define a salt to be the compound found by replacing the hydrogen of an acid by a metal, and the general formula for a salt is MR., *metal and radicle.*"

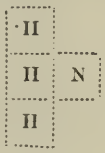
Later views of Gerhardt and Laurient. Page 71.

"It is found that the bulk or volume of a grain of hydrogen is the same as that of 14 grains of nitrogen, 35.5 grains of chlorine and 8 grains of bromine. Now, these numbers are precisely the atomic weights of these bodies, so that the same numbers express both atomic weights and specific gravity. But the same bulk of oxygen weighs 16 grains, which is just twice its atomic number, and when the vapor volumes of carbon and sulphur are determined, it is found that to fill the same space takes 12 grains of carbon and 32 of sulphur, these again being just twice their atomic weights To obtain uniformity, therefore, as well as for other reasons which can not be here stated, the atomic numbers of oxygen, carbon and sulphur, are doubled.

In this way the same numbers are made to express three facts, viz.: atomic weights, specific gravity, and combining volume.

On this view the symbols represent equal volumes of their elements. Hence, the formula for hydrochloric acid, HCl, implies a combination of one volume of hydrogen with one of chlorine. 

Water is a combination of two volumes of hydrogen with one of oxygen, thus: 

and is written H_2O, while ammonia H_3N, implies a union of three volumes of hydrogen with one of nitrogen, 

It will be noticed in the case of water, that the doubling of oxygen, is the consequence of the halving of the hydrogen. If we take equal volumes, their weights are as 16 to 1—but, as there are two volumes of hydrogen, the composition becomes H_2O, the oxygen being 16."

"There are other reasons for considering the composition of water as more complex than has been formerly supposed, so that without adopting the views of Gerhardt, we may still regard water as H_2O_2 instead of HO. Page 196.

Water. Protoxide of Hydrogen.
Sym. HO. Equiv. 9, Sp. G. 1,000.
Chlorohydric Acid. Hydrochloric Acid.
Muriatic Acid. HCl. Page 247.
Nitric Acid. NO_5. Page 209.
$KO, NO_5 + 2(HO, SO_3) = (KO, HO, 2SO_3) + HO, NO_5$.

Sulphuric Acid. Sulphuric Anhydride. Page 240.
(SO_3.) $2SO_3 + HO$. This last Nordhausen.
SO_3, HO, or common sulphuric acid. P. 259.
Hydro sulphuric Acid or Sulphuretted Hydrogen, Sulphide of Hydrogen. Page 261.
$FeS + SO_3, HO = FeO, SO_3 + HS$.
Hydrochloric. Page 249.
$NaCl + 2\,HO, SO_3 = NaO, HO_2,\ 2SO_3 + HCl$.
Phosphoric Anhydride. Page 265.
PO_5.
Carbonic Anhydride, CO_2. Page 218.
$CaO, CO_2 + HCl = CaCl, HO + CO_2$. Page 219.

Again says: Hydrogen gas is not simply H, but $\left.\begin{matrix}H\\H\end{matrix}\right\}$ or $2H_2$, or hydride of hydrogen. Page 191.

Chlorine gas is not Cl, but $\left.\begin{matrix}Cl\\Cl\end{matrix}\right\}$ or chloride of chlorine; while cyanogen is not C_2N, but $\left.\begin{matrix}C_2N\\C_2N\end{matrix}\right\}$ or cyanide of cyanogen.

According to this view, the term atom applies to the smallest part of an element which can enter into combination, but which is not known in a separate state. For instance, N is the atom for nitrogen, $\left.\begin{matrix}N\\N\end{matrix}\right\}$ its molecule.

Fownes' Chemistry edition, 1867, page 233.

Binary Theory of Salts—Says: "The great resembling properties between the two classes of saline compounds, the halved and oxy salts, has very naturally led to the supposition that both might possibly be alike constituted, and that the latter instead of being considered compounds of oxides and an acid, might with great propriety, be considered to contain a metal in union with a compound salt radical, having the chemical relations of chlorine and iodine. On this supposition sulphate and nitrate of potassa will be considered in the same manner as chloride of potassium, the compound radical replacing the simple one."

OLD VIEW.	NEW VIEW.
$KO + SO_3$.	$K + SO_4$.
$KO + NO_5$.	$K + NO_6$.

Hydrated sulphuric acid will be like hydrochloric acid a hydrate of a salt radical.

These are some of the new views. Page 239.

Sulphate of potassa, KO, SO_3.

Bisulphate of potassa, $KO, SO_3 + HO, SO_3$.

Bisulphate anhydrous, KO, ClO_5.

Susquisulphate potassa, $(KO, SO_3) + HO, SO_3$.

Nitrate of potassa, KO, NO_5. Page 238.

Bicarbonate potassa, $KO, CO_2 + HO, CO_2$.

TABLE OF EQUIVALENTS. Page 194.

Oxygen,	8
Hydrogen,	1
Nitrogen,	14
Carbon,	6
Sulphur,	8
Phosphorous,	$10\frac{1}{3}$
Chlorine,	35.5
Iodine,	$25\frac{2}{5}$
Potassium,	39
Iron,	28
Copper,	31.7
Lead,	103.7
Silver,	108

Fownes' edition, 1867, page 233.

Hydrated sulphuric acid will be like hydrochloric acid, a hydrate of salt radical, $H + SO_4$.

Sulphate of Soda. Page 248.

$NaO, SO_3 + 10\ HO$.

Bisulphate of soda, $NaO, SO_3 + HO, SO_3 + HO$.

Hyposulphate of soda, $NaO, S_2\,O_2$.

Nitrate of soda, NaO, NO_5.

Phosphate of soda, $2\ NaO, HO, PO_5 + 24\ HO$. Page 219

Tribasic Phosphate, or Sub-phosphate.

$3\ NaO, PO_5 + 24\ HO$.

Tribasic Phosphate of Soda. Ammonia and water. Microcosmic salt, $NaO, NH_4\ O, HO, PO_5 + 8\ HO$.

Fownes' edition, 1867, page 232.

Bibasic phosphoric acid, $2\ NaO, HO + PO_5 + 24\ HO$.

Phosphate of soda, 2 equivalents of base, water, $NaO, HO, PO_5 + 24\ HO$. Page 201.

Bin oxide of hydrogen $H + {}_2\ O$, or $H\ O_2$ or H O2.

Sulphuric acid, $S + 3\ O$ or SO^3 or SO_3.

Hypo sulphuric acid, $2\ S + 5O$ or $S^2\ O^5$ or $S_2\ O_5$.

Sulphate soda, $Na + SO_4$ or NaO, SO_3.

Nitrate of potash, $KO + NO_5$ or KO, NO_5.

I might quote more from the same page, but I think I have quoted sufficient to show that here all the old notations or nomenclature are retained, without exception, all within the last five years.

Fownes' edition, 1867, page 140.

$5KO, NO_5 + 2HO, SO_3$.

Nitrate of potassa. Sulphuric acid.

$KO, SO_3, HO, SO_3 + HO, NO_5$.

Bisulphate of potassa. Nitric acid.

Water 4 H O

4 Nitric acid, HO, NO_5 Page 143.

Sulphuric acid, $NaO_4\ 2\ SO_2 + 24\ HO = NO_2 + 2\ HO, S\ O_3$.

Hyponitric Sulphurous water Binoxide Hydrated
Acid. Acid. Nitrogen. Sulp. acid.

Hydrochloric acid.

$NaCl + HO, SO_3 = HCl + NaO, SO_3$. Page 159.

Sulphureted hydrogen.

$FeS + HO, SO_3 = HS + FeO, SO_3$. Page 182.

Fowne's Chemistry, edition 1870, page 146.

Says: "The specific gravity of steam or vapor of water, is found by experiment to be 0.625 compared with air, at the same temperature and pressure, or 9 as compared with hydrogen. Now, it has already been shown that water is composed of two volumes of hydrogen and one volume of oxygen, and if the weight of the one volume of hydrogen be taken as unity, that of two volumes of hydrogen (= 2) and one volume of oxygen (= 16) will together make 18, which is the weight of two volumes of watery vapor. Consequently water in the state of vapor consists of two volumes hydrogen and one volume of oxygen, condensed into two volumes."

Page 153. "In symbols, the composition of water and hydrogen dioxide, is thus expressed, Water OH_2
Hydrogen dioxide, $O_2 H_2$"

Page 157. There are five distinct compounds of nitrogen, thus marked and constituted :

	Composition.			
	By Weight.		By Volume.	
	Nitrogen.	Oxygen.	Nitrogen.	Oxygen.
Nitrogen monoxide nitrogen	28	16	2	1
Nitrogen dioxide nitrogen	28	32	2	2
Nitrogen trioxide and nitrous oxide	28	48	2	3
Nitrogen tetroxide and nitrous oxide	28	64	2	4
Nitrogen pentoxide or nitric oxide	28	80	2	5

Nitrogen monoxide, $N_2 O$. Nitrogen dioxide, $N_2 O_2$.
Nitrogen titroxide, $N_2 O_3$, titroxide, $N_2 O_4$ or $N O_2$.
Nitrogen pentoxide, $N_2 O_5$.

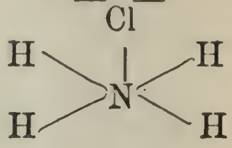
Univalent elements, or		Monads,	as	H
Bivalent	"	Dyads	"	O''
Trivalent	"	Triads	"	B'''
Quadrivalent	"	Tetrads	"	C'
Quinquivalent	"	Pentads	"	P'

Elements of an even equivalency, viz, the dyads, the tetrads and huxads, are called *artiads*, or even equivalency, and the uneven equivalency, viz, the monads, triads and pentads, are generally designated *perissads*, or even equivalency.

Water, OH_2 . . . . $H—O—H$

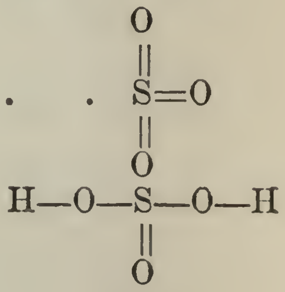
Carbonic dioxide, CO_2 . . $O=C=O$

Ammonium chloride, $NH_4\,Cl$.



Sulphuric oxide, SO_3 . . . .

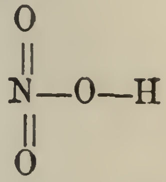
Sulphuric acid, SO_4, H_2 . .



$$\begin{array}{c} O \\ \| \\ S{=}O \\ \| \\ O \end{array}$$

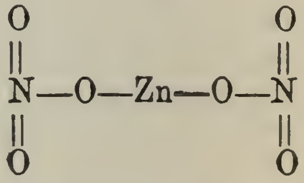
$$\begin{array}{c} O \\ \| \\ H—O—S—O—H \\ \| \\ O \end{array}$$

Nitric acid, $NO_3\,H$ . . .



$$\begin{array}{l} O \\ \| \\ N—O—H \\ \| \\ O \end{array}$$

Zinc nitrate, $N_2\,O_6\,Zn$.



$$\begin{array}{lcr} O & & O \\ \| & & \| \\ N & —O—Zn—O— & N \\ \| & & \| \\ O & & O \end{array}$$

I have not in this instance given the diagrams which are similar to the above.

"The formula for nitric acid indicates that two of the three constituent atoms of oxygen are combined with the nitrogen atoms alone, and are attached to that element by both their units of equivalency, and the third oxygen atom is combined both with nitrogen and with hydrogen."

The above formula for sulphuric acid, is the same found in some of the text books a few years back. Graham's edition, 1858, page 756. Only H instead of H_2 being the difference.

$SO_4\,H$. This of course is the hydrated acid. On page 295 is the formula for the anhydrous sulphuric acid, eq. 40

or 500. SO_3 density of vapor 2,762 the only difference in the old and new being H and H_2. According to the volume theory adopted in Fownes' last edition, two of the three atoms of oxygen are united with the nitrogen alone, and the other atom with both N and H. The fact is, this is but half an atom of the acid, if the term is allowable, the hydrogen being an hydroxyl, and in a double or complete molecule; the same thing is repeated, and hence a double hydroxylated nitric oxide, or hydrated nitric acid or pentoxide of nitrogen, and one eq. of water. The only difference between the old and new ideas consists in giving 2 eq. of N instead of one, and H_2 the new, being the volume unit instead of quantity unit formerly used by the same author and all others.

In zinc nitrate, as given above, $N_2\,O_6\,Z$, the zinc takes the place of the two equivalents of H_2, or the zinc uniting with one eq. of oxygen to form an oxide, hence the anhydrous acid is united with an oxide, and no hydrogen retained. The zinc is not a zinc oxyl as given O — Zn — O but O — Zn instead.

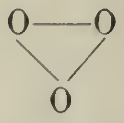
Page 238, Fowne's says: "Thus hydroxyl—O—H is not known in the free state, the actually existing compound containing the same proportions of hydrogen and oxygen being $O_2\,H_2$ or H—O—O—H."

According to the new view this would be a dihydroxyl, but not an atom of water."

Page 297. "Acid potassium carbonate, hydrogen potassium carbonate, or Mono potassic carbonate.
$Ca\,O_3\,K\,H = CO_2\,(KHO.)$"

In other language this formula would be a carbonate of hydroxylate of kalium.

Page 232, says: For the same reason the atoms of elementary bodies rarely exist in the free state, but when separated from any compound, tend to combine other atoms of the same or some other element. Perissad elements like hydrogen, chlorine, nitrogen, and separate from their compounds in pairs, their molecule contains two atoms eq. H H. Artiad elements may unite in groups of two, three, or more, thus: the elements of oxygen in its ordinary state, probably contains two atoms, that of ozone, three atoms, thus: oxygen O = O ozone,



Page 233, says: "That with a few exceptions, the specific gravities, both simple and compound in the gaseous state, are equal to half their molecular weights, or the specific volume the quotient of the molecular weight, by the specific gravities, are equal to 2."

On page 221, the table of equivalents is precisely the same as in the edition of 1867, and other text books, with the exception of two of the elements, namely, phosphorus and iodine. P $10\frac{1}{2}$ or $\frac{31}{3}$. I $25\frac{2}{5}$ or $\frac{127}{5}$.

Page 327. Calcium monoxide lime, CaO. Hydrate of lime, $CaH_2\ O_2$ or CaO, OH_2. Calcium dioxide, CaO_2. Calcium sulphate, SO_4 Ca. Calcium carbonate—marble, CaO_2 Ca.

The last edition of the United States Dispensatory, 1870, in the Pharmaceutical Appendix, contains the old notations, and none of the new, for instance, hydrogen protoxide, H O. Acid hydro, sulphurous, or sulphureted hydrogen, H S. Eq. 17.

Tyndal in his Fragments of Science, Page 81, 1871, says, "First, then, you are to remember, that to form water, the proportions by weight of oxygen and hydrogen, are as eight to one, eight ounces of oxygen for example, unite with one of hydrogen, to form nine ounces of water. But if instead of comparing weights, we compare volumes, two volumes of hydrogen unite with one of oxygen to form water. Now, these volumes, and not the weights, express the proportions in which the atoms of hydrogen unite with those of oxygen. In the act of combination, two atoms of hydrogen combine with one of oxygen to form what we call a molecule of water. Every such molecule, is a group of three, two of which are hydrogen and one of oxygen."

Page 88. Says: "The clashing together of one pound of hydrogen and eight pounds of oxygen, to form nine pounds of aqueous vapor, is greater than the clash of a weight of 1,000 tons, falling from a hight of 20 feet against the earth.

The Medical Department of the University of Louisiana, had not adopted the new text books in their lectures last winter, so that it will be seen that the new text books have not been universally adopted as yet.

DENTAL JOTTINGS.

BY H. L. SAGE.

Alveolar Abscess with Caries of the Superior Maxilla.

In an article in the June number of the REGISTER for 1870, entitled "Alveolar Abscess with Caries or Necrosis," etc., reference was made on page 251, to a case of caries of the maxilla, then under treatment, with this remark: "the successful treatment of which, with the retention of the teeth included, I hope to be able to report at a future day." A successful result having been attained, the following may not be uninteresting. Perhaps those with more experience in the treatment of similar cases, might suggest some improvements in methods of practice; but that this was not a failure, is in some measure at least, a vindication of the course pursued, inasmuch as the cure was effected, without the sacrifice of the teeth.

Miss E. L., age 34; temperament bilio-sanguine; teeth long, dense, and yellow; teeth involved, the left superior central and lateral incisors Chronic case of seventeen years standing. Incidentally treated in connection therewith, the second left superior bicuspid.

The central incisor was filled in 1852, in the posterior proximal surface, and trouble was experienced soon after.

The patient stated that about two years ago, it was unsuccessfully treated for abscess through the root canal, it being a case "that baffled his skill," as the dentist expressed it, so that, at that time, it was a case of fifteen years standing. When first seen, the abscess discharged through a fistula in the gum, over the root of the central incisor. The affected teeth were remarkably firm, but somewhat more yellow and darker than those adjoining, and owing to their natural density, the excellence of the fillings, or both, were in a good state of preservation.

December 22, 1869. First treated the central incisor, by pumping creosote through the canal in the root, some of which appeared through the fistula in the gum. At the next sitting, after syringing out the cavity in the bone, the patient by snuffing detected a fluid in the nares. Perhaps, the nerve and artery passing through the naso palatine canal, had been destroyed by the encroachment of the disease (abscess) upon them, thus leaving the channel open for the passage of fluids—as an instrument inserted at the apex of the root of the central incisor, followed without obstruction a track, leading obliquely across the naso-palatine canal, making its exit on the right side of the median line of the hard palate, about twelve lines back of the right central incisor. The bone was rough and easily punctured. Soft parts on the lingual surface, were in a perfectly normal condition.

December 23. Syringed the cavity produced by the destruction of the bone, with a solution of the chloride of zinc; first through the root canal, and then through the fistula, which made its exit in either direction, showing the circuit to be unobstructed.

A broach introduced through the root, reached to the floor of the nares, and the patient located the pain produced, in that cavity. This indicated extensive destruction of bone.

In order to diagnose freely, enlarged the fistula, by stuffing it with cotton, saturated with iodine.

December 27. The treatment usual in cases of alveolar abscess, has been continued. Was enabled to observe the root plainly, which has sustained some loss. Removed from the cavity in the maxilla, the end of a broach and some cotton fibre, which was probably accidentally forced through the foramen of the root, during its treatment two years previously. The root was entirely bare on the labial surface, two thirds of its length from the apex, and on the inferior or lingual, at least one-eighth of an inch. Length of crown three-eighths of an inch, of root one-half of an inch.

December 30. Cut away the rough, dead, and broken down alveolar process around the borders of the chasm, dressing the inside with a strong solution of chloride of zinc, and the surface with tannin and glycerine.

January 3, 1870. Filled the root and crown cavity solidly with gold. Cut off, rounded and polished the end of the root. The advantage was here presented of observing the progress of the operation during the insertion of the filling at the apex, which was so compact, as to finish as smoothly, and polish as perfectly, as could be desired.

Amount of gold inserted, twenty-four grains.

About this time, and from the 4th to the 15th, at proper intervals, dressed the chasm with tinct. iodine, sometimes in combination with creosote, and the orifice with tannin and glycerine; but there was more pus present, than when the solution of chloride of zinc was used. For cleansing the cavity, syringed lightly with a wash composed of

R.—Tinct. Iodine Comp., mxiv.
Acid. Carbolic Chryst., mvi.
Glycerina, ℥j. Aq. destillat, ℥v.*

Meanwhile the chasm was filling up slowly, and in the upper portion, under the alveolar plate, even with the borders of the perforation in the latter. Discovered a white powder on the folds of linen placed over the orifice of the chasm. Was it phosphate of lime, deposited from the pus? According to Paget, the pus from common ulcers contain but a trace of it, while that secreted from diseased bone, contains sometimes two and one-half per cent.

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* From White's Dental Materia Medica.

January 20. The chasm has filled up, to the extent of one-half its diameter. The inner surface has changed from a whitish or greyish appearance to red. The borders of the alveolar plate, and the portion of the cavity over the naso-palatine foramen are covered with cicatricial tissue. About the central incisor none of the alveolar process is bare. On removing a filling in the anterior approximal surface, of the adjoining lateral incisor, the tooth was found to be dead, owing, perhaps, to the death of the alveolar process surrounding it,—the latter, a consequence, doubtless, of the disease of the central incisor.

Dressed the cavity in the maxilla over the central incisor, with the sol. chlo. zinc—480 grs. to the ounce of water.

Filled the root and crown cavity of the lateral incisor, and continued the treatment, the patient calling the 22d, 26th and 29th.

February 1. One or two pits or sinuses were present, in the upper portion of the chasm, indicating the presence of carious bone.

February 17. Carried the fistula towards the left, by an incision, in order to diagnose more freely, enlarging the opening by stuffing it with cotton, saturated with tannin and glycerine.

February 21, Sufficient room having been obtained, examined and found a large extent of the alveolus over the root of the lateral incisor, rough, soft, and very easily broken down,—a drill entering to the depth of one-half of an inch, (six lines). There was a continuous loss of alveolar process, extending from the right central incisor to the left cuspidatus.

February 24. Owing to the enlargement of the fistula towards the left, that portion of the chasm over the central incisor, has lost its pointed shape, for the pus which came from the bone territory, about and above the lateral incisor root, had seemingly followed a channel leading from the apex of the latter, into the cancellous structure above, and across, and down into, and out of the fistula over the central incisor and laterally, through a sinus in the chasm above the latter. But a new channel having been formed for the pus, the old chasm assumed a healthful appearance.

End of the lateral incisor root bare, but not destroyed. Cut and scraped the borders and bottom of the chasm, bringing out granules of carious bone, though it was impossible, owing to the hemorrhage, to see the state of the parts during the operation. In order to control it, syringed with a solution of alum. It is evident that most of the trouble laterally, has proceeded from the presence of dead bone around or in the vicinity of the lateral incisor.

February 26. Filed off, smoothed and polished the end of the root of the lateral incisor, which was much further from the surface than that of the central. Length of root, one-half of an inch; of crown, three-eighths; of tooth, seven-eighths. Depth of chasm, including bone and soft parts, directly from the labial towards the lingual surface, one-half of an inch. Width over the lateral incisor, vertically, over one quarter of an inch; length, one half and one-sixteenth of an inch. Above the central incisor, it formerly extended under the alveolar plate to the floor of the nares.

February 28. Patient called. Dressed the abscess cavity.

March 2. The dressing of chlo. of zinc sol. caused considerable pain, and there was some swelling of the parts. To-day, a thick eschar lines the chasm. No pus. Syringed the cavity, and dressed lightly with iodine and creosote, which removed all pain.

March 8. Chasm has filled up one-eighth of an inch. Appearance white or grey. A short sinus points in the upper portion of the chasm, just under the incisive fossa. Dressing of sol. of chlo. of zinc, 40 to 60 grs. to ounce of water. Over the orifice, with tannin and glycerine. The root of the central incisor is being covered gradually.

March 12. No perceptible progress.

March 13. Looking better. Tinct. of iodine dressing. Shortened root of lateral incisor. Present length three-eighths of an inch. Orifice of chasm, diminished from side to side, three-sixteenths. Patient has commenced to take as a tonic, elixir phosphate, iron, quinine and strychnia. Reports good effects. Dresses surface of abscess daily with tannin and glycerine, and to cleanse it, syringes lightly. Have dressed from time to time according to the indications.

When using the sol. chlo. zinc, to form an eschar, to protect the granulating surface from the irritating effects of air and fluids, or substances foreign to the cavity, it usually remained from three to five or even seven days, and so long as this protection was afforded, there was little, if any, pus secreted from the surface. Though under this treatment the chasm filled up very fast, yet wherever it maintained a pointed shape, it seemed to be an indication of the presence of carious bone—a sinus always leading off from the pointed portion. These sinuses were followed up, from time to time, and dead bone found and removed, great caution being exercised.

March 19. There being a sinus at the bottom of the chasm, beneath the root of the lateral incisor, removed the new growth, and cut away bone in that direction; also, under and around the root of the lateral incisor, and between that and the root of the central. Removed ten or more pieces and granules of carious bone. In these operations, some of the bone being scraped away, was so fine, that its condition was undistinguishable, and it being impossible, owing to the hemorrhage, to obtain an inner view of the cavity; some healthy bone was, of course, necessarily taken away. To-day, after the operation, a view was for the first time secured of a portion of the bottom of the chasm, to the extent of about three lines in diameter of surface. A view is much more difficult to be had in the treatment of cases where teeth are remaining; access is not so easy, on account of the limited space in which to operate, and the manipulation is more delicate.

The portion of bone seen, was smooth, (having been scraped) white, and vascular, with two minute bleeding points, indicative of health. That removed was destitute of blood vessels, and its color, dark. In a line between the central and lateral incisor, a portion of the palatine plate was gone, the perforation being in diameter about three lines; an instrument inserted from the front, being plainly felt by the finger, if placed on the lingual surface, where, notwithstanding, the mucous membrane was healthy.

Patient called on the 21st, 23d and 26th,—the latter period being seven days since cutting. Over the bare bone, was an unorganized layer of greyish-white material.

The period of incubation over sawn or cut bone, according to Paget, lasts about ten days, before a change occurs; then an increased supply of blood; then the granulations commence to organize.

March 29. Sides encroaching upon each other rapidly. Chasm still pointed over the perforation in the palatine surface, which is overlapped with tissue from the sides.

April 5. Chlo. of zinc sol. formed no eschar the last time it was used. Seems to have a better effect when in combination with the surface dressing of tannin and glycerine.

April 15. Patient came late. Unsatisfactory view. Chasm filled nearly up to root of central incisor.

April 19 and 20. Light dressing of tinct. iodine.

April 25. Sinus remains at the bottom of the chasm. Soft parts very sensitive.

April 28. Smoothed off the borders of the perforation in the hard palate, and endeavored to make them as perpendicular as possible; also, cut towards the floor of the nares above the lateral incisor, but did not enlarge the orifice. Have used round hoes and Palmer burs with great advantage and convenience. Depth of chasm over five-eighths of an inch.

May 2. Granulating surface is greyish and "succulent, and abundantly supplied with blood." Syringed with calendula and water. Dressed with sol. chlo. of zinc.

May 3d and 4th. Patient also called.

May 6. Removed dead bone under the root of the lateral incisor, and towards the cuspidatus, near the palatine surface. Cut the borders well. Perforation in hard palate three-eighths of an inch in diameter. The lateral incisor root overhangs the chasm over one-eighth of an inch.

May 7, 12, 16 and 19. Dressed according to the indications. Root of lateral incisor is being covered on the labial surface. Shall aim to induce rapid closure, and if hereafter an operation becomes necessary, cut from the lingual surface.

May 21. Examined the left superior second bicuspid, which the patient stated, had been treated through the root, for abscess, two years ago, and pronounced cured; the fistula in the gum having closed. It was then an abscess of three years standing. Thinking that, possibly, some connection might exist between this case and the one under treatment, by means of a sinus, leading from the root of the second bicuspid, through the spongy bone, back of, and past the roots of the first bicuspid and cuspidatus, near the lingual surface,—into the chasm, (but which I have never fully determined,) proceeded to make an examination. First removed the crown filling of sponge gold, in the posterior approximal surface, and the root filling of cotton. Filled the root canal temporarily, with floss silk saturated with creosote, and the crown cavity with oxychloride of zinc.

May 23. Gum had swelled over the root. This question then occurred: has the bicuspid been diseased during these two years? The fistula in the gum being closed, did disease still remain, the contents of the abscess emptying into the chasm over the incisors, through the sinus in the spongy bone above referred to?

Made application to the gum to await further developments.

May 25. Much pus over the root, which flowed freely after lancing the gum. Bone hard, and somewhat sensitive, but absorption enough to permit the easy passage of a drill. Introduced floss silk and creosote into the abscess through the fistula.

May 28. Removed temporary filling. Inserted point of hypodermic syringe, loaded with a suitable quantity of creosote, into the root canal, sealed up with plaster, and forced the medicine through. It appeared through the gum freely. Refilled the root temporarily. Introduced cotton saturated with tinct. iodine in the orifice of the fistula. Third dressing. Tested the state of the first bicuspid and cuspidatus adjoining, by means of ice. Found sensitiveness to contact—indicating life; the teeth under treatment not responding.

June 18, 1870. Fistula entirely healed. Gum healthy. Afterwards inserted a permanent filling, though the root foramen was much enlarged by the destruction of the apex.

To continue the report of the particular case under treatment—May 25 and 28, and June 2 and 6, dressed as usual.

June 18. Having returned from a visit to the country, the patient again called. Abscess cavity filled up very much; root of lateral incisor is being arched over with tissue. Perhaps the treatment of the second bicuspid may have had a favorable effect upon the case. No sinus remains in any visible portion of the cavity. Dressed with sol. chlo. zinc.

June 23 to 30. Same dressing; sixty grs. to ounce of water, and gums with tannin and glycerine. The patient being about to leave town for a season, prescribed mild dressings with syringe.

July 29. Returned. Same progress.

August 3. A good view of all parts of the much reduced chasm, excepting in the upper posterior corner, which is arched over.

August 5. Dressing of tinct. iodine and tannin and glycerine. Frequent dressings are best, when mild.

August 9, 16 and 17. Light dressings.

August 20. At the suggestion of Dr. Atkinson, dressed the chasm with the elixir of vitriol, (aromatic sulph. acid,) and to keep the "pocket" from being filled up, or encroached upon by the lip, placed a thin strip of hollywood or a properly molded piece of gutta percha plate over it.

August 22. The apex of the root of the central incisor, being very near the surface, rendering the process of covering with tissue very slow, cut down, made flat, and smoothed it off on the labial surface, in order to make room for a *thicker*, and thus induce a more *rapid* growth. The roots of these teeth, have a constant tendency to approach the surface. The contraction of the cicatrix at the bottom of the chasm, probably has this effect. No pus. "Pocket" filled with an eschar, produced by the elixir of vitriol.

August 25 and 27. Eschar not entirely removed.

August 30. Deepest portion of pocket filled up one-half since the application of sulph. acid, though the size had previously been greatly reduced.

September 3. Dressed with the elixir of vitriol.

September 10. Eschar remains in deepest portion of chasm. Scraped the lips (of chasm) to induce union by adhesive inflammation.

September 14. Eschar not removed.

September 22, 24 and 26. Scraped the lips, or dressed with tinct. iodine lightly.

November 5. Patient has been stimulating the surface with a dressing of essence of peppermint for a few days past. Progress good. Roughed, scratched, or lightly scraped the lips of the pocket.

January 13, 1871. Depth of chasm reduced to about one line—length two lines. Just the smallest portion of the apex of the root of the central and lateral incisor is visible. Has received no dressing for several weeks.

July 19. The patient having been absent, have not seen the case since January 13. Root of central incisor, entirely covered by a mere film of healthy tissue. Root of lateral incisor, completely enveloped by a new growth. Gums about the cervical portions of the teeth, very hard, tough and healthy, with very little feeling. The root of the central incisor being so near the surface, was the last to receive the covering. The lips of the chasm, pocket, or cavity, united in the middle, and from that point approached and covered the root of the central incisor. There is just the slightest depression where the loss occurred—nothing indicating disease

The central incisor is as firm as its mate, and the lateral has nearly as much firmness, though the alveolus around it was destroyed more extensively.

As the chasm in the maxilla, reached at one time, in depth over one-half of an inch; in length, from side to side, five-eighths, extending in width to the floor of the nares, the production of tissue is nearly as extensive as was the loss—making allowance for the contraction of cicatricial tissue, which is visible to some extent, on the palatine surface, in the region of the loss, but which is constantly and rapidly thickening over the roots on the labial surface.

OPERATIVE DENTISTRY, OR FILLING TEETH.

BY PROF. C. M. WRIGHT.

Read before the Mad River Dental Society, September 12, 1871.

Perhaps friends may think that the writer of this paper should let his pen follow other paths. He has never distinguished himself as an operative dentist—has never described his method—has never elaborated a filling with a fluent tongue before this or any other society—has never had figures of *his* pattern of pluggers published in the advertising columns of a dental periodical—has never been called upon by a *god* in the profession, at a national association, to "tell them how you do it Willie, or Charlie, or Sammie"—using the christian name as a mark of special recommendation, approbation and admiring familiarity.

These things give a man the right to speak with authority on the subject. These give what we prize so high—fame. In fact, this is fame. The demi-god A. says, "that man can fill teeth better than any other dentist in the country," and all the balance of the alphabet go on saying "that man can fill teeth better than any other dentist in the country," without ever having seen a single operation of the favored one, or knowing for themselves anything about the matter. And so it goes in the medical profession, and so it goes in the dental profession. What is operative dentistry? It is the surgical (that word is more genteel than mechanical) operation of cutting away decomposed and decomposing dentine and enamel of teeth—cutting the cavities into good shape for retaining foreign substances, and then stuffing, stopping, plugging or filling the cavity, as well as possible with gold, tin, amalgam, or oxychloride of zinc. This operation, when performed neatly, rapidly and skillfully, without causing extra pain, is as fine a surgical and mechanical operation as we know of. It requires but a very short time for a man of ordinary ability, to learn to fill a cavity in a tooth, fastened in a vise, but it takes labor and practice to learn to perform this operation, when the cavity and tooth are found in an unfavorable location in a nervous patient's mouth. The difficulty of the operation makes it a more uncertain mechanical success. At different periods, and in different localities, even in our own country, entirely different modes of performing this stopping, stuffing or plugging operation, have been and are the fashion. For instance, the writers of twenty or thirty years ago, describe a method of stuffing gold into cavities entirely different from the methods we to-day consider good. Throughout the south, we find elegant operators who use soft or non-adhesive gold entirely, introducing it in the form of pellets, cylinders, balls, strips and ropes, who do not understand or believe in the northern and more fashionable, (because more modern) mode of using adhesive gold, and depending upon the adhesion or cohesion of little pellets or mats of gold, to build their cavities full of the precious metal.

In Ohio, nearly every dentist fills after the latest fashion. Day before yesterday the only way to fill teeth, was to roll Nos. 4 or 6 adhesive gold in a napkin, cut the strips so rolled into pellets, start from a retaining pit and tack on pellet by pellet, the gold. Yesterday heavy foils, heavy mallets, and rubber dams were the fashion. To-day, smooth pointed pluggers rage—he who does not adopt the style in vogue, is gently dropped into the oblivious past, and can not sit down at the round-table with choice spirits who are in the "advance"

Many a poor, weak-minded brother, does not possess the moral courage to stay in the rear. It tickles him to have an *advance* man smile on him. It fills his mind with a black gloom to think that the advance may turn coldly from him—not recognize him. This is not simply rhetoric or talk. I am not writing this because I want to write—I am stating a terrible fact—and I received it from the "fount of inspiration," as truly as you or anybody else ever received instruction from that source. But what are we striving after in our advance movements? Is the advance guard moving in the right direction? Are the leaders of the advance infallible? Ask them if they are saving more teeth by their present modes—if they are gaining time in their operations—if they are simplifying the operation of filling teeth—if they are lessening the pain and discomfort of the operation for their patients? The rear guard cry No! Ohio dentists are spending their lives (and their lives are not the lives of mere mechanics—Oh no!)—are spending their lives I say, in the noble occupation of trying to perform difficult mechanical operations on the teeth. Given a plain cavity in an inferior molar, easy of access, healthy patient, everything favorable—the cavity moderately large, requiring from twelve to fifteen or eighteen grains of gold to stop it. What do we do? 1st. Spend from ten minutes to one hour in arranging, with considerable pain, much mouth stretching, and some gagging to the patient, a rubber coffer dam. 2nd. Spend from one to two or three hours in tacking on small pellets of gold, layer by layer from a retaining pit, with a muscular boy and a steel or lead mallet for our power. 3d. We trim, and burr, and file and polish—what have we accomplished? A beautiful operation—solid gold in a hole in a tooth. We have also tired ourself, tired our boy with his sledge-hammer, and if the patient is not a cast iron man, have almost killed him. Every body feels strained. Every body needs rest. Every body feels that two or three efforts like this would be enough for one day. Three holes in the teeth stopped—enough for one day's work! The old fashioned operator dried the cavities placed a little napkin about the tooth, and filled the cavity with cylinders or plugs of soft gold in from five to twenty minutes, with much less fatigue, inconvenience and pain to the patient, and a shorter muscular exercise for himself, and the plug saved the tooth twenty or thirty years. Let us look at the thing mechanically. You have a hole to stop in a plank. Will you take saw dust and little chips and lay them in and fasten each fragment there one by one, when the water is rising rapidly and may flood your work? Or will you select a plug and drive it in, stopping the hole at once?

But teeth are not planks. No, but the principles of common sense and mechanics are good, and can be applied in both cases. "Oh!" I hear you say as you said about opinions on another subject of the same writer. "He has low ideas about the duties of his profession." "He hasn't progressive notions." "He is behind the times—the older dentists among us used to fill teeth years ago in some such way and now when we look back we think that then we didn't know how to fill teeth at all." Well, you have a right to opinions, if they are carefully formed, and yet every old dentist among you has confessed, when chance has thrown in his way one of his early operations, "By George, those fillings have kept well, and kept the teeth well too."

I claim that it is unprofessional to spend half a day in performing an operation that can be done as well, with more certainty of success in stopping a cavity and arresting decay, in twenty minutes. I say to the dental profession, you are spending too much time, too much mechanical skill, too much labor, too much patience for the amount of real work you do—for the number of teeth you try to save. You are degenerating from a high and noble professional position, to that of simply *skilled mouth jewelers.* All we want to accomplish as dental surgeons, is the arrest of the disease, caries, and the restoration of an organ to usefulness and health. Hard, beautifully compact and highly polished lumps of gold set in a tooth do not always do this. It requires great patience and time and skill to adapt this hard gold perfectly to the unequal walls of a cavity—greater skill, more patience, longer time to each operation than the majority of us can at all times command.

With soft gold, and the old way of filling, nearly all of us can stop a cavity. I think a much larger per cent. of teeth have been, are and can be saved for usefulness and time, by the shorter and more philosophical way, aside from the advantages of time gained, the greater number of teeth that can be cared for with the same expenditure of skill and patience, strength and comfort. Many of the finest operations of our best operators fail, while the gold itself is capable of lamination. This is unfortunately a very serious *fact.*

Perhaps I am wrong in my opinions. Any of us may be mistaken in our favorite opinions, but I do not wish to be apologized for by my friends. The opinions expressed here are based on considerable thought, a good deal of careful observation and some experimenting, all bearing on this subject of filling teeth. They are also opposed to early instructions received. But if I stood alone on the question, I should have to brave your condemnation, and express my belief that I think we need reform in this department of dentistry. We need a little retracing of steps. We need go backwards a short distance. I am not alone in these views, however, but have the countenance of all but the advance guard and those who are led by them. Because adhesive gold is good and valuable in certain cases, is no reason why we should make a large proportion of our operations *capital*, when they would be *miner* if we employed soft foils.

At the meeting of the American Dental Association, at Nashville, Dr. Forbes excused himself for not being able to make himself heard, on the ground of having lost his teeth by "first-class dentistry." Thousands of mouths are in like condition. At the same meeting a paper was read by Dr. Knapp, of New Orleans, on "The Saving of Time in Dental Operations." It is a valuable paper, and well worth the attention of our slow-coach Ohio brethren. Another point might be urged on this topic, though it will not be expected that the subject shall be fully elaborated in a paper of this kind. It is the question of fees to the dentist and expense to the patient. The man who takes three hours to fill a tooth, should receive, by a law in political economy, as much for that one filling, as he should get for three, who fills three teeth in three hours. The slow method, therefore, tends to increase the price of an operation, the price of a tooth. Is there any advantage, or any object to be gained in raising the charges for saving a tooth threefold? Not if we are philanthropists as well as physicians and surgeons of the mouth. Unless our philanthropy embraces only the dentist.

The greatest good to the greatest number is a good rule in operative dentistry. A great many men who have come into the profession within ten years, in our state, have never seen a soft foil filling, and do not know the advantages. To them I would say, try it in your laboratory, try it in simple crown cavities, learn the principle and test it for yourselves. Prepare your cavity without retaining pits—make cylinders, block or pellets a little longer than the cavity is deep. Set them in the cavity and apply lateral pressure against the walls of your cavity; wedge them in with a key block or cylinder—consolidate the surface with the burnisher, and finish. Or stuff your cavity full of gold, solidly against the walls in any way most convenient to yourself and patient, and the way you can do it quickest and best. Do this well. You can conserve teeth, avoid unnecessary pain, and fill twenty teeth per day (if the cavities are in favorable position) when you become expert. Reserve your adhesive foil for special cases. Think over this brethren, and give the writer credit for candor, at the risk of his reputation in the State of Ohio, as an operative dentist.

Proceedings of Societies.

PROCEEDINGS OF THE WISCONSIN STATE DENTAL SOCIETY, HELD AT LA CROSSE, JULY 11th and 12th, 1871.

The Second Annual Session of the Wisconsin State Dental Society, was held at La Crosse, on July 11th and 12th, 1871.

Society called to order by D. W. Perkins, President.

Roll called by the Secretary.

Present—Drs. D. W. Perkins, J. C. Lukes, C. C Chittenden, E. Palmer, A Holbrook, E. R. E. Carpenter.

Minutes of the previous meeting were read and approved.

The Committee on Membership reported the names of the following dentists as eligible for membership:

Dr. William Decker, of Oshkosh; Dr. R. S. Wells, of Sparta; D. W. Vanburgh, of La Crosse; E. G. Hazelton, of Kenosha; F. A. Williamson, of Red Wing, Minn.; S. W. Gilman, of Beaver Dam, who were severally elected.

The President then made a short address.

On motion of Dr. Palmer, the resident physicians, dentists and members of the press, of La Crosse, were invited to be present and take seats with the society.

The Secretary made his annual report.

The number of dentists signing the Constitution and paying initiation fee, thus becoming active members, was twenty.

Number of honorary members elected, five.

Amount of money paid over to the Treasurer, $100 (one hundred dollars.)

Orders drawn on treasury by vote of society, $26 42.

The Treasurer made his annual report.

The total receipts for the year, previous to the present meeting, $100.

Disbursements by bills paid, $26 42.

Cash advanced to Chairman of Publishing Committee for contingent expenses, $20.

Funds in the hands of the Treasurer, $53 58.

On motion, Drs. Wells, Hazelton and Decker, were appointed to nominate officers for the ensuing year.

The society then adjourned till 2 o'clock P. M.

AFTERNOON SESSION.

Committee on nominations of officers reported the following, who were duly elected:

President—Dr. E. Palmer, of La Crosse.

1st. *Vice President*—Dr. A. Holbrook, of Waukesha.

2d. *Vice President*—Dr. J. C. Lukes, of Racine.

Recording Secretary—Dr. Chas. C. Chittenden, of Madison.

Corresponding Secretary—Dr. D. W. Perkins, of Milwaukee.

Treasurer—Dr. A. Solliday, of Watertown.

A committee of three was appointed to wait on the President elect, and escort him to the chair, where he was received by the retiring President, Dr. D. W. Perkins, with appropriate remarks of congratulation.

Dr. Palmer, in responding, said he was duly thankful to the society for the honor conferred upon him; that his heart was set upon the society's success and its object, which was to elevate and bring into a bond of progressive union the dental profession.

The first subject for discussion, Nature of Dental Caries, was taken up.

Dr. W. H. Atkinson, of New York city, being present, was invited to open the subject. He said the subject was so occult and hidden, that it was nearly impossible to make a connected argument without some regularly laid down statements on which to start a discussion.

"*The nature of caries.*" If we really understood the word "nature," the rest would open to us like a barn door. At the word "nature" there rises before us a vision of the whole structure of the tooth in all its various stages and wonderful minuteness of formation. A tooth once properly formed and perfectly constructed, can not possibly decay. There enters into the construction of the tooth, three entirely distinct processes. The enamel may be considered as strictly mineral, and falls properly under the head of chrystalosophy. The dentine is a compound formation of mineral and animal tissue, and may be classed under the heads both of chrystalosophy and cellosophy. The pulp involves the principle of corpusculosophy. If these are all perfectly formed there can be no decay. Decay is the result of a violation of nature's laws during formation. The law of life is action. Health is obedience, decay disobedience of that law. The cause of imperfect formation of the teeth—the planting of the germs of disease, is mainly the result of misdirected parental affection, which not only fails in passively effecting good but actively effects evil, and this has brought into existence the latest upheaval of science, the dental profession.

Dr. Chittenden considered caries entailed upon offspring, and that its development was influenced to a greater or less degree by surrounding influences which might either increase or decrease its celerity and extent.

On motion, the "question and answer" mode of discussion was adopted.

Dr. Wells gave the case of a child four years old in whose mouth every tooth was carious, and asked for the best mode of treatment, with a view to secure a healthy permanent dentition.

Dr. Atkinson thought the condition described was the result of exhaustion of the cells of development. He advised feeding the child upon a confection of prep. chalk, sugar and gum paste. At night make a mortar of prep. chalk about the teeth. In the morning brush with a soft brush the upper teeth downward and the lower teeth upward.

Dr. Hazelton asked: "Will a disease of temporary teeth injure the permanent teeth?"

Dr. Atkinson said not at all, if properly treated. In case of alveolar abscess, after opening and cleansing sac, inject into it elixir of vitriol or pure sulphuric acid. When the necrosed portion of the bone has been sufficiently saturated, wash out the cavity and apply a little tincture of calendula. This treatment will insure a removal of the trouble.

The society then adjourned until 8 o'clock P. M.

EVENING SESSION.

Society called to order by the President.

Discussion of second subject, "Pathological condition of Dental Nerves," occupied the space of about an hour, and was participated in by Drs. Palmer, Wells, Decker, Atkinson, Carpenter and others. The drift of all the arguments was in support of the proposition that dental nerves in almost every stage of disease, where there is vitality in any portion of them could and should be saved alive. The use of oxychloride of zinc was universally advocated as the best covering for exposed pulps.

Dr. Atkinson said inflammation should be treated on general principles systemically. Locally, he formerly used creosote, but now advocated in its place, thymol which he has been using with great success. His mode of treatment was this, after removing caries from cavity, wash the exposed pulp with salted water and calendula, injecting into the tooth with a syringe. Afterwards dress with thymol until the inflammation subsided, then cap with oxychloride of zinc.

Dr. Taylor, of La Crosse, gave his experience in endeavoring to preserve the life of a dental nerve, by the old method, which proved unsuccessful. Stated that with the use of thymol he had been successful in every case he had undertaken.

Dr. Atkinson was elected an honorary member of the society by acclamation.

The President then announced the standing committees for the ensuing year:

Executive Committee—Drs. E. W. Foster, R. S. Wells, L. C. Stewart, E. M. Clark, M. B. Johnson, E. G. Hazelton, C. C. Chittenden, C. W. Barnes and Wm. Decker.

Dental Ethics—Drs. D. W. Perkins, N. H. Drew and F. A. Williamson.

The President announced that arrangements had been made for some clinical operations to which the time of the morning session would be devoted.

The society adjourned till 8 o'clock A. M., next day.

WEDNESDAY MORNING SESSION.

This session was devoted to clinics. Three operating chairs were brought into requisition.

Dr. E. R. E. Carpenter performed the operation of preparing a large molar crown cavity entirely by means of the Pneumatic engine, and demonstrated beyond a doubt its superiority over any other instrument ever used for that purpose. He filled with Atkinson's foil No. 120, cutting down and polishing the filling with the engine.

Dr. Perkins made two beautiful contour fillings in central incisors.

Dr. Atkinson operated on an exposed pulp, demonstrating his method of treatment for such cases.

Dr. Poor, of Dubuque, Iowa, exhibited a machine for drilling cavities, which when properly developed and perfected will probably be a considerable improvement over the old hand drilling method.

Dr. J. Taft, of Cincinnati, being present, was invited to address the society in the evening.

Adjourned till 2 P. M.

AFTERNOON SESSION.

Society met pursuant to adjournment.

Subject for discussion, "Absorption or Recession of Gums." Discussion was participated in by Drs. Taft, Holbrook, Atkinson and Chittenden.

Dr. Atkinson in cases where there was a deposit of salivary calculus, advocated after removing the deposit, the use of the Pneumatic engine, with porte polisher of wood and prep. chalk, after which he used "dilute elixir of vitriol," applied at the juncture of the tooth and gums, care being taken to prevent its coming in contact with other parts of the mouth, maintaining that the acid would not act chemically on the live dental tissue, but only decompose the remaining particles of lime deposit, impossible to be removed mechanically.

Dr. Holbrook read a paper on atrophy and its causes, for which he received a vote of thanks.

Dr. Taft said the subject was obscure; critical exceptions might be taken to the name given the disease, yet it is appropriate enough for all practical purposes. Atrophy is imperfect organization. There is a great difference in the structure of dentine as seen under the microscope. These pits were never filled by nature. Sometimes the tubuli passed through the dentine and through the enamel, and a microscopic aperture is left in which impurities lodge, and decay is produced, which appears like atrophy but should not be mistaken for it. It is a different disease, but practically requires no different treatment.

We should instruct parents during their children's dentition, to avoid the diseases of childhood, taking good care of the health, feeding the children on proper diet.

Treatment—If the atrophy is superficial, dress down the surface; if deep, or showing tendency to decay, cut out and fill.

Dr. R. F. Wells then read an essay on "Dentistry *vs*, Money," for which he received a vote of thanks.

After discussing this subject at some length, the following resolution was adopted:

Resolved, That the society offer a prize of $10 for the best written tract on a subject connected with the care of the teeth, said tract to be written in a style adapted to the popular wants.

A committee of three consisting of Drs. Wells, Decker and Gilman, were appointed to act as judges.

Adjourned till 8 P. M.

EVENING SESSION.

Society met pursuant to adjournment.

President Palmer in the chair.

Chairman of the Publishing Committee presented a bill of M. J. Cantwell & Co., for printing two hundred and fifty copies Constitution, By-laws, etc., $22 50, which was ordered paid.

On motion of Dr Perkins, a *per capita* tax or assessment of three dollars was voted, and the Secretary instructed to collect it.

On motion of Dr. Holbrook, the Publishing Committee was instructed to secure the publication, in pamphlet form, of the entire proceedings of the society from its organization.

Dr. Taft then delivered an able address on the Standing of the Dental Profession. He said: It is necessary to take an exact reckoning that we may decide thereby what is ahead of us, and how we shall go in the future. What have we? A profession young, but strong, accomplishing even more than it has dared to claim until recently. It has not grown in a hot bed, but has fought its way through many tribulations. Stabbed in the house of its friends, with no assistance from without, yet, to-day, it challenges the admiration of the world. Within ten years over one hundred societies have sprung up, aiding and advancing the profession. Earnest men always attract attention, and if on the right track will succeed.

Another means of our advancement is our *Dental Literature.* This is not now what it might be, because it is not properly supported by the pens and purses of the profession at large.

Another powerful influence for our professional advancement, is our dental colleges. These should demand a higher standard of qualifications for admission and graduation. It is delightful to observe that the profession is growing daily more hungry for knowledge. The more we learn the more we find there is to be learned.

The Chairman of the Executive Committee presented a bill of $15 15 for postage, publishing notices, etc. This was allowed and an order drawn.

On motion, Dr. Taft was declared an honorary member of the society.

Dr. Palmer introduced the following amendment to Constitution:

Resolved, That it shall be the duty of the Secretary to strike from the list of active members, the name of any person who has failed or may fail to participate in the meetings of this society, and pay his dues to the same, for two successive years, and the person so expelled shall not be restored again to membership, except by vote of two-thirds of all the members present at any regular meeting.

Laid over according to Constitution.

Dr. Palmer moved to amend the By-laws by inserting the word three in place of five, in section 9.

Laid over till January meeting.

Dr. Chittenden offered the following:

Resolved, That this society individually and collectively, owe a debt which we know not how to express or repay to Drs. Taft and Atkinson, for their presence and assistance to us in our deliberations and discussions at this meeting—they having come a great distance to be with us; that we offer them our warmest thanks. Adopted.

Dr. Palmer offered the following, which was adopted:

Resolved, That the thanks of the society are hereby tendered to Twilight Lodge of Good Templars, for the use of their hall during the session of the society.

Dr. Wells offered the following:

Resolved, That the thanks of the society are hereby tendered to Mr. C. F. Wilkins, for the use of one of his best chairs during the clinical operations. Adopted.

The following gentlemen were appointed delegates to "American Dental Association:" Drs. C. C. Chittenden, R. S. Wells, D. W. Perkins, F. A. Williamson, S. M. Gilman.

The society then adjourned, to meet at Watertown, on the second Tuesday in January, 1872.

CHAS. C. CHITTENDEN, *Sec.*

Editorial.

THE BROOKLYN DENTAL SOCIETY.

It was a very grateful privilege we enjoyed recently, in being present at the Brooklyn Dental Society, at its annual meeting, to see between thirty and forty members of the profession in one city in council, met for the consideration and discussion of matters pertaining to the best interests of the profession. That this is done every month, argues well not only for that locality, but for the profession of the whole country. From that number of educated, earnest, working men, meeting regularly and laboring, diligently for the promotion of science, an influence will go out that will be wide reaching and operative, in breaking down prejudice and selfishness, and opening the way for the entrance of light and knowledge. Harmony and unanimity of feeling characterize the profession in Brooklyn, an illustration of which is shown in the establishment and maintenance of a dental hospital by the Brooklyn Dental Society.

Among the interesting matters that were presented, was a decided improvement in working the "Celluloid Base," for artificial dentures, by Dr. Beatrice, of New York. His method simplifies the work very much, and is very efficient. Long may the Brooklyn Dental Society live, and greatly may it prosper. T.

MAD RIVER DENTAL SOCIETY.

The semi-annual meeting of this body was held on the 11th and 12th of September at Yellow Springs. There was not a large number of the members present, but all who were ther participated in the proceedings, so that it was a very profitable, interesting and pleasant time. The discussions were good. The clinic by Dr. Blount, illustrating the use of smooth points in filling, was an entire success, showing most conclusively that it is practicable to fill teeth as well and as rapidly with smooth as with serrated pluggers; and in further illustration of this it is worthy of note that both Dr. Blount and Dr. Williams, of Xenia, have used smooth points only, for the last eight months, and they regard their operations made during this time superior to anything they had ever performed before, and they are certainly very good in appearance.

After a meeting of two days, the Society adjourned to meet in Xenia in May next.

This is one of the most active local societies with which it has been our privilege to meet. T.

CHANGE AND REMOVAL.

All our readers know that about three years ago, their and our especial friend, and one of the editors of this Journal, Dr. Geo. Watt, was compelled by ill health to give up for the most part he practice of our profession; but in doing so he could not remain idle, but engaged in the invention, improvement, manufacture and sale of Dental instruments and materials; in these directions he accomplished much for the profession. During this time he also held the chair of Chemistry in the Ohio Dental College, in which he labored most efficiently and acceptably. Within the last few months circumstances made another, or rather other changes necessary. Soon after the close of the last session of the Dental College he regarded his resignation from active labor in that Institution a matter of necessity, his health and strength being such as to absolutely forbid his longer retaining his position. After much hesitancy on the part of the Trustees, and greatly to the regret of all concerned, his resignation was accepted. About the first of September he deemed it best to make still further changes, which resulted in the sale of the Dental Depot, and his removal to Xenia, the place of his former home. He has always regarded Xenia as his home, though absent from it for a time. There is perhaps to each of us some place so dear and sacred in its associations that we can not and do not wish to forget it as home.

There he will engage in the practice of the profession again, as formerly. This removal of Dr. Watt from our city is a matter of great regret to many of his friends, and especially to the profession here. Of one thing we think the profession may rest assured, that so long as health and strength remain, his talents will be exercised for the best interest of a profession he loves so well. May the brightest prosperity attend him in all his course of life. T.

* * *

THE CHICAGO FIRE.

We do not refer here to the great fire to give any general intelligence in reference to it, but to speak of it as it affects our professional brethren in Chicago; and we can not tell this better than by giving a letter just received from Dr. C. L. Smith, of Springfield, Ills., in which he says: "I have just returned from a visit to the scene of the terrible calamity in Chicago. A great majority of the Dentists there are burned out, their offices at least, and many have lost everything.

Drs. Dean, Cushing and Crouse, are burned out entirely. Dr. Cushing lost everything, not even setting eyes on his office. Dr. Dean saved a few instruments, and a trunk with a little clothing. Dr. Crouse saved considerable of his furniture and instruments, though he lost heavily. The latter two have rented rooms together, and I suppose are able to start afresh. Of all those of whom I learned, Dr. Cushing is in the worst fix; having lost everything, he must start *de novo*." Dr. Cushing is well and favorably known to the whole profession, and we have simply to suggest to each and every one of our readers that they do in these cases as they would have others do to them in similar situation. The profession should see to it that their brothers are put upon their feet again for business.

Let something be done by every one and it will be a light matter, and yet do great good. We trust that attention will be given to this matter in every city and town in the country. Contributions may be sent to either of the parties by mail. T.

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DENTAL EDUCATION.—TWENTY-SIXTH ANNUAL SESSION OHIO COLLEGE OF DENTAL SURGERY

The twenty-sixth annual session of the Ohio College of Dental Surgery was commenced yesterday in the College Building, on College street, which has been thoroughly renovated and repaired.

The session opens with a large class under auspices of the most flattering character.

Professor David Vaughan, whose name is prominent as well as honored among the scientific men of the day, has accepted the chair of chemistry, and added his magnificent apparatus to the facilities of the institution.

This is the first professional institution in the country that adopted the system of classified teaching, which is now in operation five years. The medical department of Harvard College adopted it this year, and proclaimed it as a novelty. The Miami Medical College of Cincinnati has had it in operation three years.

The annual announcement in speaking of this plan, says:

"The pupils will be divided as heretofore into senior and junior classes; the admission to the one being gained only by the mastery of the studies of the other. The present curriculum of Dental study including Anatomy, Physiology, Histology, Pathology, Materia Medica, Therapeutics, Organic and Inorganic Chemistry, Metallurgy, Operative Dentistry, Hygiene, Microscopy and Mechanical Dentistry, presents altogether too wide a range of thought, and too many studies to be pursued with profit at once. So manifest are the advantages accruing from the classification introduced by this institution, imperfect though it be, that no one in anywise familiar with it would regard it for a moment as advantageous or desirable in any respect to make even the slightest retrograde movement, or to return to the practice of teaching all alike, regardless of their relative attainments.

"The lectures are arranged to meet the wants of students, and will be as numerous as can be heard with profit.

"The lectures and clinical instructions in the Infirmary and Laboratory will fully occupy the students' time, and they should be ready to give them their undivided attention from the first day of the session."

Microscopy is taught in this college under a competent, practical instructor, provided with the best instruments and microscopical apparatus in the West.

This college also affords rare opportunities to the students in operative dentistry. All the principles in detail involved in its practice are presented to the students, who are, in fact, required to thoroughly master them, as a basis for treatment and manipulations.

A Dental Infirmary is connected with the college, where every member of the senior class is required to spend a portion of each day in the work of the Infirmary.

The Faculty are:

James Taylor, M. D., D. D. S., Emeritus Professor of Institutes of Dental Science.

C. Kearns, M. D., Professor of Anatomy.

Edward Rives, M. D., Professor of Histology, Physiology and Pathology.

D. Vaughan, Professor of Chemistry, Materia Medica and Therapeutics.

F. Brunning, M. D., Professor of Pathology.

J. Taft, D. D. S., Professor of Operative Dentistry, Dental Hygiene and Microscopy.

C. M. Wright, D. D. S., Professor of Mechanical Dentistry and Metallurgy.

Wm. Taft, D. D. S., Professor of Clinical Dentistry.

A. Schwagmeyer, M. D., Demonstrator of Anatomy.

The regulations of the college are:

"1. An extension of the session to five months.

"2. A preliminary examination, the requirements of which shall be a good English education.

"3. There shall be two classes, junior and senior; the first shall consist of first course students, the second of those who are candidates for graduation.

"4. The studies of these classes shall be arranged as follows:

"First Year or Junior Class—Anatomy, embracing Dissections, Physiology, Histology, Inorganic Chemistry, Metallurgy, and Mechanical Dentistry.

"Second Year or Senior Class—Histology, Pathology, Dissections, Organic Chemistry, Therapeutics, Operative Dentistry, and Dental Hygiene.

"5. Members of the Junior Class will be required to pass an examination on the branches studied before entering the Senior Class. This may be at the close of the Junior or the beginning of the Senior course, at the option of the student. When this examination is satisfactory, a certificate of the fact, bearing the seal of the College, shall be given to the student, which shall entitle him to enter the Senior Class.

"6. Applicants for admission to the Senior Class must pass a satisfactory examination on the Junior course, except when, in special cases, the Faculty may allow them to take a part of the Junior Course in connection with the Senior, in which case this part of their examination will be deferred till the close of the Senior term."—*Cincinnati Commercial.*

THE

DENTAL REGISTER.

Vol. XXV.] NOVEMBER, 1871. [No. 11.

Communications.

DENTAL JOTTINGS.

BY H. L. SAGE.

Roots of Teeth and the Maxillary Sinus.

It is well known that the roots of the superior bicuspids and molars, sometimes pierce the floor of the antrum, while at other times, there is a mere septum of bone separating the apex of the root of a tooth from that cavity. Again there *are times* when circumstances require the extraction of these teeth—and it is not a rare case, if the attempt to do so, does not at the first endeavor, prove successful. The tooth may be broken off, leaving the root or roots, or only a portion of one may be left in the alveolus.

In attempting to remove the remaining fragment, there may be danger, when the above conditions present, if great care is not exercised, of forcing it into the maxillary sinus. In endeavoring to extract the apex of a root with the elevator, by inserting the point between it and the alveolus, this accident may happen.

Harris cites a case reported by Fauchard, "in which a canine tooth had been driven into it," (the antrum) though in a different manner from that above stated.

He speaks of it as "the only case on record," that "it was followed by severe pain, and ultimately gave rise to a tumor upon the cheek, near the nose, and three fistulous openings," which only disappeared on the removal of the canine from the cavity. The following, is a report of a case, in which the consequences were happily, not serious.

In May, 1865, Mr. G. P., aged 35 to 40, called to have the second left superior molar extracted. In the attempt to remove it with the forceps, the anterior buccal root was broken off near the apex. In endeavoring to remove the fragment with the elevator, it was suddenly forced into the antrum, though very moderate force was employed. After *fishing* for it quite a long time unsuccessfully, the attempt was abandoned. Being somewhat timid and inexperienced, the opening was not enlarged, as a bolder operator might have suggested, but in accordance with the advice of an older practitioner, the result was watched, pending further steps in case of the appearance of any trouble therefrom. But none has been produced up to this time. The floor of the antrum at that point, was about the thickness of ordinary writing paper. Length of broken end of root, about three-eighths of an inch. It would not be surprising, if such accidents were of more frequent occurrence than comes to our knowledge. Though the foregoing case may afford an example of erroneous practice, inasmuch as the root was not removed from the cavity, it is cited as showing the danger that may exist, even in so simple an operation as the extraction of the root of a tooth. At another time, and with another individual, the presence of a foreign body in the maxillary sinus, might be productive of unpleasant consequences.

Treatment of the Maxillary Sinus, in connection with Alveolar Abscess.

In connection with the treatment of the right superior second bicuspid, and the adjoining first molar, the following conditions presented: May 6, 1870, Mrs. G. A. G., of Scotch extraction, age about 40, temperament sanguine, called. History: in 1867, examination was made of the second bicuspid, and finding it dead, the pulp and crown cavity was cleaned out and a temporary test filling inserted; when sufficient time having elapsed and no evidence of disease having been manifested, it was on the 14th of July permanently filled with gold.

According to the statement of the patient, the tooth was filled about five years previously, and was alive, but trouble being soon after experienced, it ceased, upon the lancing of the gum. On the 6th of May, 1870, she appeared with the gum and cheek badly swollen, and the eye partially closed. On lancing the gum, which had no fistula, nearly a tablespoonful of pus was discharged. The alveolar plate was perforated, and there was much loss of bone.

Injected creosote through the perforation, leaving cotton saturated with iodine in the orifice, and discharged the patient for a few days.

May 12. Swelling much reduced and no discharge *through the gum.* Dismissed for trial.

July 13. No appearance until this date. Some swelling and a permanent fistula. No pus oozed from it. Enlarged the opening in the alveolar plate for the purpose of smoothing off the rough borders, and if necessary, the apex of the root, and continued the former treatment when, July 14th, in syringing out the cavity produced by the abscess, much force being used, a dark colored, bloody fluid issued from the nostril, from the natural opening of the maxillary sinus—indicating that the contents of the abscess discharged into, or had connection with this cavity, and which was also apparent on the insertion of the point of the syringe.

On the presentation of this state of the case, it was deemed best to extract the tooth, which was done. Though the patient had complained of being troubled with the catarrh, there had been, aside from that, no uneasiness until recently, and the discharge into the maxillary sinus, may have been of short standing. It was syringed with tepid water and a sol. of chlo. of zinc—5 grs. to the ounce of water.

July 16. Face somewhat swollen. Syringed with a mild solution composed of tinct. iodine, carbolic acid, glycerine and water.

Natural opening of the antrum apparently closed by inflammation. Left cotton in the orifice of the opening leading from the socket of the bicuspid, with direction to renew it daily, and masticate on the other side.

Dismissed, intending no further treatment except it became necessary.

August 8. The opening where the bicuspid was extracted was not closed. There was a swelling over the adjoining right superior first molar, which, on pressure, in the direction of the opening, caused an exudation of pus from the latter, so that there had been a discharge from above the molar, through a channel leading to the cavity in the bone above the bicuspid. As the abscess over the second bicuspid root extended to, or was connected with the antrum, endangering its integrity, it was not thought best to run any risk of further irritation by the treatment of the molar—consequently it was also extracted, when it presented the appearance of having been diseased for a long time and was very offensive. On removing a well inserted filling in the posterior proximal surface, it revealed the fact that either the pulp at the time of filling was nearly, or quite exposed, or was already dead. It had two roots only, of which the buccal pointed anteriorly, and was separated from the maxillary sinus by a thin septum of bone, while the lingual root pierced it, or else the portion of the floor at that point had been destroyed.

Neither of these teeth, when treatment was first commenced, had fistulous opening in the gums, though badly abscessed, and it would therefore seem that the pus escaped to the antrum through the passage made by the destruction of the floor—though the dull, heavy, uncomfortable feeling was not present at any stage of the disease—at least to any great extent.

No further treatment was resorted to, and the case was not again seen until September 7, 1871, the patient during he interim having suffered from an attack of remittent fever.

No further trouble had been experienced in the region of he maxillary sinus, while it and the parts adjacent seemed o be in a perfectly normal condition.

Singular Location of Dental Caries.

Mrs. M., the wife of a clergyman, called July 22, 1871, for advice with reference to the left superior central incisor, which had been abscessed for eight years, but within four weeks the parts around had assumed an acute form of inflammation, rendering them very sensitive, and the tooth exceedingly loose. An examination failed to reveal the cause, as the tooth was, apparently, perfectly free from caries and very dense in structure, neither could any cause of death be ascertained from the history of the case. At a subsequent examination, after some treatment, a very careful and thorough exploration was made with an excavator, and a cavity discovered on the lingual portion of the root, under the gum, about midway of the distance from the neck of the tooth to the apex of the root. It was completely hidden from view, and the decay had progressed to such an extent, that the root was very nearly severed. May not the location of a cavity three lines or more above the margin of the gum, on the lingual surface of the root of a central incisor, be cited as a rare case?

A CASE, AND ITS PERPLEXITIES.

BY H. SCOTT.

Messrs. Editors: I give you a concise statement of a case that disturbed my equanimity to some extent. I do not choose to append any remarks, and only state the case with the hope that I may be able to help some one who may chance to be placed in similar circumstances.

Recently a robust farmer, of middle age, called to consult me about a swelling in his mouth, which he said was very painful. I found a phlegmonous inflammation of subacute character, opposite the first right upper molar, and extending up to the median line. The tumefaction was considerable, and to the touch was found to be very tense. It had been induced by the condition of the palatine root, which was of unusual length, and was denuded of its natural covering quite up to its apex. It had been coming on slowly, he said, for several days. The tooth stood the sounding hammer, showing that there was no periosteal inflammation about the roots; but notwithstanding, because the restoration of the soft and hard involucres of the root would be impossible, I advised the immediate removal of the tooth. He would rather keep the tooth if the inflammation could be dissipated, the more especially as he dreaded the pain of its removal. The inflammation had not risen to the degree when pustulation was likely to terminate it; and as there was little chance for encouraging the formation of abscess by emolients, on account of the position, I told him we must direct our attention to the cure by the first intention. I therefore truncated the parts by free incisions with a very sharp bistoury, and sent him away to call again in two days. He came at the time and the inflammation was still of the same chronic character, though the tension of the parts was less, and the tumefaction perceptibly subsiding. I told him he was doing as well as I had expected, and prescribed a solution of sacharum plumbi, to be applied with wet rags, and held for a time in contact several times during the day and night. This treatment has always done good in such cases under my hands, changing the parts to a normal condition.

At the end of four days he presented himself again, to say that he was suffering more than ever. I found the entire buccal cavity, clear down to the crest of the soft palate of a fiery red color, and the mucous membrane thickly studded with unsightly granulations. I said, sir, you have not been using the sugar of lead wash at all; you have been using local irritants, and you are in a bad fix. He expressed alarm, and wanted to know if there was danger that it would kill him. I replied that I thought not, if he would stop the use of his stimulants; but I would not prescribe under the circumstances, and he went away. He had been plying, under other advice, carbolic acid and potash washes alternately. I told him I thought he would have white ulcers in his mouth by the next day.

IS IT A THIRD TOOTH, OR THE DEVELOPMENT OF THE LONG DORMANT PULP OF A SECOND MOLAR?

BY H. SCOTT.

A few days since, an old gentleman with whom I have been long acquainted, meeting me on the street, said, "*I have recently cut a new tooth.*" Presuming of course that the stump of some broken off molar had come to light below the gums, I invited him into a room that I might determine. I was mistaken. There was a large and perfectly formed molar on the left side of the upper jaw, occupying about the place of the second molar, though it was more like a first molar. The tooth appeared fresh and young, or about as the molar of a person of eighteen or twenty years.

Mr. M. is over sixty-five years of age. He told me he had nothing but stumps in his mouth for many years, and the last of them he had removed more than a year ago. The strange tooth came through the gums within the last two months, and developed rapidly.

Correspondence.

Messrs. Editors: Permit me to call attention through the dental journals to the fact that but a few months only of the Goodyear patent now remains unexpired to bother the dentists.

The Goodyear patent expires next May. Its last extension was a crying shame, but nevertheless we had to submit to it. The Cumming's Patent is as worthless as straw, and I trust no dentist will respect it, notwithstanding it has been coupled with the Goodyear patent in an *ex parte* license contract, and its recognition enforced by the Rubber Company upon the dentists. The Cumming's Patent applied for and issued long after the general introduction of rubber into the profession, has no claim whatever upon us, nor are all those licenses which we have been obliged to sign, at all expressive in any sense of any choice on our part, nor have we had anything to say about a mutual agreement, but simply to accept their terms, or be deprived of the use of the rubber. On the principle of a highway robber they have said to us, Your money, or you will be sorry! I think every dentist will regard his contract with the Rubber Company as binding as he would a promise to a highway robber, and I can not think he would respect it much more. A case has occurred where the Vulcanite Company immediately abandoned their cause upon the filing of a replication, in a suit where the Cumming's Patent alone was in question. I refer to the case of Dr. T. B. Gunning, of New York (and I wish that replication, which is in print, might be published in the dental journals). It is a very able defense and covers the whole ground, and gives the Cumming's Patent no foundation, in fact, to stand upon. No doubt a shrewd plan of getting each and every dentist committed for a year or so, will be introduced by the Rubber Company at the commencement of the New Year, although they well know they have but four months or so wherein they can make any valid claim upon us.

Let each decide what he will do before the New Year comes in.

Many can relinquish the use without doubt for that short time. All ought to use freely after the expiration of the time, without any royalty to anybody. It will be wise to have a fund to try this issue with the Rubber Company (if they see fit to press the matter) by a combination of the dentists, which will have every prospect of success if there is any justice to be had.

Respectfully,

One of the Pioneers in Dental Rubber Work.

Proceedings of Societies.

ANNUAL MEETING OF THE LAKE ERIE DENTAL ASSOCIATION.

The last regular annual meeting of the Lake Erie Dental Association, was held in Meadville, Pa., commencing on the 6th of June, 1871, and continuing for three days. Dr. G. B. McDonneld, President, in the chair.

Minutes of last meeting read, corrected and approved.

The following members were present at the meeting:

President, G. B. McDonneld, of Conneautville; Vice-President, J. G. Templeton, New Castle; Secretary, C. H. Bagley, Meadville,; Treasurer, S. W. Tenney, Corry; Censors, A. B. Robbins, Meadville; J. G. Templeton, New Castle, and C C. Carroll, *pro tem.*, Meadville.

Present—J. A. Marsh, Union Mills; E. R. Allen, Girard; D. C. Dunn, Meadville; C. D. Elliott, Franklin; W. T. Wallace, Kingsville, Ohio; S. W. Tenney, Corry; W. H. H. Brown, Conneautville; J. B. Humes, Edinboro; E. M. Pierce, Warren; F. Herrick, Greenville; Geo. Elliott, Meadville; G. W. Nelson, Ashtabula, O.; J. H. Nelson, North-East; C. H. Griffin, Oil City; C. B Ansart, Oil City; Jas. Harrison, Jamestown, N. Y.; W. M. Martin, Mercer.

Dr. Robbins delivered an address of welcome, in which he gave a brief history of the dental profession in Meadville, claiming for a citizen of this city the original use of the mallet when filling teeth, viz.: Dr. Beatty, who drove in his filling with a shoe hammer; showing the great progress and improvement of dentistry since the days when Drs. Merritt and Wright sojourned here on their periodical trips from Pittsburg to Erie, and when a German used to travel through this place advertising his "Royal Mineral Succedaneum, a composition superior to gold for filling teeth," which proved to be a simple amalgam; and finally illustrated from his personal experience the great advance of the profession in liberality. Formerly all knowledge was kept secret as far as possible; now all freely receive and freely give.

The President next addressed the meeting. The central thought of the address, dwelt upon at some length, was the mighty force of associated effort in the search after knowledge. The writer called attention to the failure of the committee appointed to obtain a State law regulating the practice of dentistry, and urged the society to renewed efforts through petitions and other channels, as essential to success.

The following persons were then nominated for membership: Dr. Kolb, of Franklin; Dr. M. B. Naramore, of Linesville; Dr. W. M. Martin, of Mercer; Dr. W. H. Reynolds, of Rouseville, and Dr. H. and Mrs. E. Wormersley, of Meadville.

Dr. Gifford being absent, Dr. Carroll was appointed to fill his place on the Board of Censors.

Dr. Martin, favorably passed upon by the board, was balloted for and duly elected a member of the association.

Dr. Robbins announced the death of Dr. R. G. Snow, of Buffalo, member of the association. Suitable action was taken expressing regret for his loss.

The Constitution and By-laws revised by special committee, were reported and adopted.

REPORTS OF DELEGATES.

The chair announced that reports of delegates were in order.

Dr. Robbins, though not a delegate, reported that the meeting of the State Society last year in Pittsburg, brought about by this Society, had aroused the profession in that city to renewed efforts and improved practice, and had infused new life into the local society there.

DENTAL CHEMISTRY.

Dr. Elliott being called on, read an essay on "Dental Chemistry."

Remarks and discussions followed.

Dr. Wormersley, one of the visitors, doubts that fluids of the mouth affect the teeth, but thinks that they are destroyed by temperature and climate.

Dr. C. D. Elliott thought although the fluids of the mouth might not directly injure the teeth, the state of the system which produces acid saliva affects the nutrition of the teeth, and thus impairs their power of resistance to external agents.

Dr. Ansart, who had lived in South America, stated that the natives of that country eat great quantities of acid fruit, and that their teeth soon become disintegrated and readily crumbled away.

Dr. Hawxhurst, a visitor from Michigan, was invited to take part in the discussion. He thinks that caries results from the combination of acids with the lime salts of the teeth, that the fluids of the mouth do not act directly on the teeth. We look for decay in fissures and depressions where food collects, and at the margin of the gum where acid mucous is secreted. The teeth of dyspeptics, whose secretions are so often acid, generally decay rapidly. The Dr. demonstrated by examples that temperature had but little influence on the teeth, the temperature of the mouth being uniform except when changed by the introduction of foreign substances.

Dr. Robbins said that the chemical theory of decay is the accepted one, the old theory being that decay proceeded from within outward; but now that it proceeds from without inward; thinks we have a combination of chemical and thermal agents causing decay by the decomposition of food lodged about the teeth. So the limestone of houses in eastern Pennsylvania crumble and disintegrate under the thermal and chemical influences of the atmosphere.

Teeth resist chemical action better than do the other animal tissues which are constantly changing; but the teeth have not the same power of repair which belongs to the other tissues. In order to understand the chemistry of the teeth, we must understand general chemistry. Lime salts should be administered through the food, as in brown bread, lime water in white bread, and directly, as hyphosphite of lime, etc.

Dr. Ansart mentioned that in South America a Chinese Coolie who would eat no fruit but lived on meat, bread and rice, had excellent teeth, while the other Coolies, who eat much acid fruit, had crumbling teeth, like those of the natives, yet the enamel in the first case was not so thick as that of the natives.

This closed the first days session. The discussion on Dental Chemistry was resumed on Wednesday, and Dr. G. Elliott being called to account, stated that he had omitted a part of his essay referring to gestation and lactation, on account of the presence of ladies in the audience.

Dr. Griffin thought this a false delicacy. It is the duty of the dentist to instruct the mother in these matters; thinks that acids injure the teeth, but that there must first be a door opened for them, which may be accomplished in the mother during gestation, when the child takes part of her nutriment

Dr. McDonneld said that deterioration of the teeth results from diseased constitutions, the effect of improper living; people must be taught to live simply and correctly, or remedies and diet will be of little avail; illustrated his position by an example from Dr. Burdell's book, viz.: The teeth of cows fed on their natural food are sound, while the teeth of those fed on hot swill are much diseased. True medicine is proper living, which in a few generations can regenerate the human race.

Dr. Wallace said that any of the acids formed in the mouth can decompose the teeth especially when there is not good resisting power. These acids produce chemical changes.

Nitric acid attacks the albumen of the teeth, and causes brown decay. Sulphuric acid produces black and hydrochloric acid white or chalky decay. These acids are generated by a disordered stomach, and other causes. When there are fillings of different metals in the same tooth, a battery is formed and a galvanic current flowing from the baser to the finer metal, producing decay. This should be guarded against. Not more than once in five hundred times should we use any other metal than gold for filling teeth.

Dr. Griffin asked if the enemy outside could force an entrance without the assistance of a traitor within.

Dr. Wallace replied that we may take a sound tooth and muriatic acid and produce decay out of the mouth; still, if a man's health was perfect, he would probably have no decayed teeth, the vital force enabling them to resist external agencies.

Dr. Allen had lived in the South Sea Islands; had never known a native to have the toothache, but where he was there were few acid fruits. The health of these islanders was generally good; they had no fevers, but had pulmonary diseases; they took great delight in bathing. Among the Indians of Michigan he found many bad teeth, but they lived much as the white men did.

Dr. Wallace had lived in Valparaiso, and found the teeth of the South Americans all more or less decayed. The half breeds were much afflicted. He came to the conclusion that the direct cause was a hot drink called Matte. The front teeth were most affected. Those who used improper food had a different decay; those articles which had sulphur in them formed sulphurous acid, which, taking oxygen from the atmosphere, formed sulphuric acid, and this produced decay.

Discussion closed.

MANAGEMENT OF CHILDREN'S TEETH.

Dr. G. W. Nelson read a paper on this subject, in which he advocated the use of prophylactics, the filling of deciduous teeth with gold, Hill's stopping, etc , and educating the parents in the care of their children's teeth.

Dr. Carroll stated that at its last meeting the American Dental Association had appointed a committee to draw up short rules for the management of children's teeth, and have them inserted in school text books.

Dr. Carroll said we never should extract the deciduous teeth before the time of the eruption of the permanent teeth if it is possible to avoid it. Would treat exposed nerves and fill as in permanent teeth. For filling these temporary teeth he likes tin, which can be put in quickly; after tin Hill's stopping, which must be renewed occasionally. Has extracted before the time for the eruption of the permanent teeth when there are well defined cases of alveolar abscess; thinks there is a tendency to contraction of the jaw on the premature extraction of deciduous teeth.

Dr. G. Elliott finds great difficulty in using gold or tin in deciduous teeth; thinks in some cases amalgam well prepared makes as good a filling for deciduous teeth as we can get; does not advocate the general use of amalgam; uses oxychloride of zinc most.

Dr. Ansart never uses amalgam in children's teeth; prefers Hill's stopping and Guillios' cement.

Dr. Wallace—One condition of deciduous teeth is where the permanent teeth appear before the deciduous teeth are properly disposed of. Permanent teeth come in a wrong position.

Dr. Robbins—Management of children's teeth includes the permanent teeth. Six year molar is usually the first tooth coming under the dentist's care. Parents often think it a temporary tooth and neglect it. We should treat and preserve this molar as well as all other permanent teeth;

thinks that the shortening of the jaw and change of facial angle of the Anglo-Saxon race is caused by the early extraction of permanent teeth. Nature's model is the best; we can not restore the contour of the face after the extraction of cuspids; should avoid amalgam if possible; but would use it rather than extract.

Dr. C. D. Elliott has better success with cement plombe than any other plastic filling. Gave a case of nine months standing, which is still good.

Dr. McDonneld mentions an oxychloride of zinc filling, which has lasted two years. The density of *os-artificiel* depends on the method of manipulating it.

Dr. Ansart called for information concerning the lancing of children's gums.

Dr. Griffin—When the gums are tumefied, inflammation high, and children almost in convulsions, would not hesitate a moment to lance. Thinks there is much virtue in Homœopathic medicines in these cases.

Dr. Ansart would invariably lance when the membrane is tense and the inflammation is high, passing a sharp lance directly down to the tooth on the line of the cutting edge.

Dr. Dunn said that cicatrices yielded more readily to pressure than normal tissues, so that lancing did not retard the eruption of the tooth.

Dr. Elliott thought that more pain proceeded from the tension than from congestion.

Dr. Wallace said that the congestion was caused by pressure. The arrested blood corpuscles pressing on the nerve tissue cause pain. This condition was relieved by lancing.

ALVEOLAR ABSCESS.

Dr. Carroll read an essay on Alveolar Abscess, describing its various forms and the treatment required. His rule for applying local remedies, was to choose that most agreeable to the patient, whether hot or cold. Discussion followed. To illustrate, Dr. Carroll took the case of a central incisor.

Would inject an escharotic. When all inflammation was subdued and the fistula healed, would fill the root solidly, and, if the trouble is renewed, would open through the alveolus, and remove the sac mechanically.

Dr. Templeton has had more success with this method than with any other, but fills before treating. Treatment through the canal is not effective unless we can force the creosote through the fistulous opening. After breaking up the sac, applies creosote. Sometimes uses an anæsthetic, before operating. If this treatment fails, it is because we do not reach the spot when opening through the gum.

Dr. McDonneld has been treating abscess for six years, and is confident that he has cured 99 in 100 cases in the superior maxilla. In the inferior maxilla is not so successful. Injects an escharotic, usually creosote, through the pulp canal. Almost all cases of failure are due to an impaired condition of the blood, or as in the inferior molars, to the difficulty of reaching the sac. The escharotic changes conditions and destroys life, the absorbents then carry off the effete matter if the person is healthy.

Dr. Hawxhurst wanted information about constitutional conditions. The same treatment will succeed in one case and in others fail. We can not cure abscess, but only change conditions while nature cures. In some constitutional conditions, nature can not do this.

Dr. Carroll—Medicine never cures anything. Nature, vital force, the "little workers" cure. If the workers are sick, they can not perform this work. We must first bring the little workers the blood corpuscles, in good condition.

Dr. Robbins remembers when it was considered unprofessional to treat alveolar abscess, and when he was called a fool, by professional men for attempting it. We must use the term cure for want of a better one. In some cases apparently healthy, it is difficult to decide why we do not cure. In others a constitutional taint, as syphilis is easily detected. When the foramen of the canal is small, and there is no fistula, must make an opening through the gum. The best instrument for this purpose is a sharp Gates' Drill, which goes through the process easily and brings out the cuttings, leaving a smooth, round opening. When after apparently cured, inflammation supervenes, may often arrest it by counter irritants on the gums. The action of iodide of potassium in these cases, is illustrated in Dr. Watt's Chemical Essays. The iodine and potassium are like coupled dogs harmless till they reach the point of obstruction, when they are released. The iodine goes off with oxygen as iodic acid, while the caustic potash dissolves the obstructions.

Dr. Geo. Elliott considers the treatment of alveolar abscess in the same light as other surgical operations. After breaking down the sac, introduce remedies which dissolve the material and prepare it to pass out, then keep the fistula open till the cavity is filled up by healthy granulations proceeding from the bottom to the top, assisting with tonics. Several interesting cases were described by Drs. Griffin and McDonneld. Discussion closed.

MECHANICAL DENTISTRY.

A paper on Mechanical Dentistry, read by Dr. Herrick, next gave rise to some discussion.

Dr. Templeton held that to obviate air holes in plaster models, soak the impression half an hour in water, having thinly coated it with varnish to give color, and pours without oiling.

Dr. Pierce uses aniline in the water to color impressions, and uses silex for parting.

Dr. C. D. Elliott when taking impressions, uses the plaster thin if the palate is spongy, so as not to push away the soft parts. If the parts are firm mixes the plaster thicker. When taking impressions for partial sets, if the natural teeth are ill shaped, oils the impression cup before mixing the plaster. After taking the impression, removes the cup first and splits the plaster before removing it.

Dr. McDonneld thinks that the expansion of impressions results from having too thick a body of plaster, to be remedied by using wax first and over that a thin coating of plaster. After taking the impression puts it in water to prevent heating which causes expansion.

Dr. Dunn thinks expansion takes place in the vulcanizer.

Dr. Templeton—To get a good articulating bite, directs the patient to sit upright and stretch the muscles of the neck before closing the jaws.

Dr. Ansart—For partial sets takes impressions before extracting roots, and carves out the plaster—getting good results.

Dr. C. D. Elliott has put up one set of teeth on the Hyatt Perkins base. If it will withstand the fluids of the mouth, and wears well, it will supersede rubber. Put up the case in 1½ hours.

Dr. Wallace describes the method of using pyroxyline, which he prefers to rose pearl. It is composed principally of gun cotton and ether submitted to heavy pressure which forces out the ether. For soldering it, fillings of the material itself reduced to a pulp by ether, are used.

Dr. Robbins—The Hyatt Perkins base contains camphor. Is afraid of the effect of camphor on the mucous membrane. This base is inflammable as is the case with all collodion bases.

Dr. Tenny has cast aluminum plates The process requires great nicety of manipulation to obviate the effects of shrinkage when cooling. After casting, must jar the flask and plunge two-thirds of it into wet sand where it must be rotated continually, the plunger being pressed hard against the mouth of the flask. The upper part of which must be kept warmer than the lower. Aluminum melts at about 1,500°, gets better fitting plates of aluminum than of rubber.

Dr. Hawxhurst swages thin plates of aluminum on type metal dies, the shrinkage of which is about right. Fastens the teeth with Watt's & Williams metal, columbium. Drills holes in the alveolar ridge, countersinks, and fills them with pure wax. Proceeds as for a rubber case, using powdered pumice in the plaster to prevent shrinkage; heats the flask almost to the melting point of the metal; then having the metal as nearly as possible at the melting point, pours the metal and jars the flask.

Dr. Tenny suggested the use of parafine instead of wax to fill the countersinks, as it will disappear entirely when heated.

Dr. Robbins gave Prof. Barker s method of soldering aluminum plates. Prof. Barker swages the plate, scrapes it clean, and melts on it a little solder or tin, over a spirit lamp and usually gets a good union, but sometimes fails. Then heating the invested plate, he casts the metal in. In this method does not pierce the plate. Dr. Robbins thinks that the use of the French flux naphtha which is a hydrocarbon without oxygen, protects the plate from oxygen, and thus allows a union. Dr. R. stated that Dr. Moffitt, of Harrisburg, has improved his non-sectional block work. The sections are now molded and biscuited before the body is packed around them.

Dr. Hawxhurst advocated the use of gold as a base for artificial teeth, it being a good conductor of heat, incorruptible, and easily swaged, can be attached to the teeth by rubber. The objection to it is its high price. No material will ever be very successful which is not a good conductor of heat.

Dr. Templeton prefers Allen's Continuous Gum, Moffitt's Non-sectional Block Work, and the Looms patent, to gold.

Dr. Robbins thinks the safest and best way to use rubber is as an attachment to gold plate. Passes a continuous rim of gold around inside the teeth; does not perforate the plate but solders gold loops to the plate to hold the rubber. This makes the best denture, being clean and strong, and the thermal changes are good.

Dr. C. D. Elliott uses double headed platinum pins instead of gold loops. Is experimenting with plumpers, and if successful, will report at the next meeting.

Dr. Robbins said that the first plumpers he ever saw was made of cotton. Gave an interesting account of his early experience in working gold in old times, when he was obliged to melt his gold at the blacksmith's forge, for which privilege he was accustomed to blow the bellows for the blacksmith.

Dr. Harrison gave his method of resuscitating patients who are sinking under the use of chloroform. He passes the feather end of an uncut quill down the throat and gives it a rotary motion. The patient will revive instantly, there being sympathetic connection between the glottis and the heart. Has always succeeded in this way.

The session of Thursday commenced with discussion of an essay read by Dr. McDonneld on

THE NECESSITY OF DIVIDING THE DENTAL PROFESSION INTO TWO DISTINCT SPECIALTIES—OPERATIVE AND MECHANICAL—AND THE BENEFIT TO BE DERIVED THEREFROM.

Dr. G. Elliott thought that the division of the profession would make it the interest of the mechanical dentist to destroy the natural teeth.

Dr. McDonneld explained that he would take, by law, the forceps out of the hands of the mechanical dentist.

Dr. Tenney states that, in his town, the physicians extracts more teeth than the dentists.

Other members made the same statement.

Dr. G. Elliott thinks that for every tooth extracted by dentists, physicians extract 100. Advocates the passage of a law dividing the profession and compelling dentists to obtain a diploma before commencing practice.

Dr. Pierce shows his patients Dr. Bond's work on anæsthetics and their effects, and tells them that every time they take anæsthetics or have a tooth extracted, they have driven a nail in their coffins.

Dr. Robbins says we are now suffering from the inroads of physicians. There are short roads to the title of M. D., and incompetent men are continually slaughtering teeth.

When trying to get the passage of a law regulating the practice of dentistry, there was at first, a clause allowing physicians to extract teeth, but this was afterwards stricken out.

There was at first good prospects of the passage of the law, but it was soon clogged. Petitions asking for its passage were then circulated among the dentists of the State, and in this section, at least, were very generally signed. Another attempt to secure the passage of the law will be made at the next session of the Legislature.

The following is a copy of the proposed law:

AN ACT to improve and regulate the practice of Dentistry in the State of Pennsylvania.

SEC. 1. Be it enacted by the Senate and House of Representatives of the State of Pennsylvania in General Assembly met, that it shall be unlawful for any person to practice dentistry in the State of Pa., for compensation, unless such person has received a diploma from a reputable dental college, duly incorporated under the laws of this or some other State of the United States, or foreign country, or has obtained a certificate of qualification issued by the State Dental Society, as hereinafter provided, or has been in reputable dental practice for ten or more consecutive years in this State: Provided that nothing in this section shall apply to persons now engaged in the practice of dentistry in this State before the 1st day of January, A D. 1874.

SEC. 2. It shall be the duty of the State Dental Society at its first annual meeting after the passage of this act, and annually thereafter, to elect five qualified members of the State Dental Society to act as a board of examiners, whose duty it shall be to meet at least once a year to examine all applicants, and, upon a satisfactory examination, issue a certificate of qualification to practice dental surgery.

SEC. 3 To provide a fund to carry out the provisions of Sec. 2, the board of examiners shall collect from all who receive certificates to practice Dental Surgery, the sum authorized by the State Dental Society, not exceeding Thirty dollars each, and account to said society for the same.

Sec. 4. Any person who shall practice dentistry without having complied with the requirements of this Act, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not less than fifty (50), nor more than two hundred (200) dollars.

Sec. 5. All prosecutions under this Act shall be by indictment before the Court having jurisdiction in the county where the offence was committed, and all fines imposed and collected under the provisions of this Act, shall be paid into the treasury of the school fund in the district where the offence was committed, for library purposes.

Dr G. W. Nelson : In Ohio there is a State law regulating the practice of dentistry, and it is working well.

Dr. Wallace, who had been on the committee to obtain legislative action in Ohio, related his experience, and thought that it was an advantage to have the matter delayed, that it may be agitated and discussed, and the minds of the people aroused.

On motion of Dr. Templeton a rising vote was taken for and against the passage of a law regulating the practice of dentistry, resulting unanimously in favor of the passage of such a law.

SALIVARY CALCULUS AND ITS TREATMENT.

A paper on this subject, read by Dr. J. H. Nelson, gave rise to the following discussion :

Dr. Nelson formerly cleaned teeth for two shillings, but now can obtain from two to four dollars, so great is the benefit derived from the operation.

Dr. Pierce advocated extreme care in removing every particle of tartar from beneath the gums, showed how to use the tooth brush with a vertical motion, afterwards passing waxed floss silk beneath the gums and around the teeth.

Dr. C. D Elliott, after removing tartar, always polishes the teeth with powdered pumice, and burnishes them.

Dr. Templeton thinks that the essayist's treatment of the gums, after cleaning the teeth, viz , the application of a solution of chloride of zinc, 40 grains to the ounce of water, is too powerful. Prefers creosote.

Dr. G. Elliott has seen Dr Nelson apply the chloride of zinc with excellent and rapid effect.

Dr. Robbins says perfectly cleaned teeth will not decay, but imperfectly cleaned teeth are in a worse condition than those not cleaned at all. Discourages the use of powders. Does not use tincture of myrrh, preferring tannin, and has used chloride of zinc, but is very cautious, as the hydrochloric acid will leave the zinc and attack the tooth. For diseases of the gum and suppurating peridental membrane, however, chloride of zinc is an excellent remedy after the failure of creosote. Finds a difference in the action between carbolic acid and pure beachwood creosote, the latter acting more kindly on the pulp and peridental membrane. Discussion closed.

OPERATIVE DENTISTRY.

Dr. Bagley read some notes on operative dentistry, calling attention to a few points in practice—as the use of Guillois' cement, Pack's Eureka gold, light and heavy foils, material for mallet, etc. Discussion followed.

Dr. Hawxhurst likes Guillois' cement—should apply creosote to the cavity, dry it, and then apply the cement, at first thin, afterwards mixed thick and applied quickly. Keep dry till hard; coat with very thin sandarac varnish to fill the pores, and then polish. Dr. C. D. Elliott protects the pulp from the caustic action of Guillois' cement with plaster of paris and thin carbolic acid.

Dr. Carrol uses Palmer's continuous current electric battery, on inflamed surfaces, and in chronic alveolar abscess. Is very successful with the battery when treating sensitive dentine. If the battery were powerful enough, could overcome every case. Applies one pole over the tooth, and the other over the nerve ganglia. Has feared inflammation of the pulp, but has not aroused it with the electricity.

Dr. Robbins has used electricity since 1858. This use of electricity was patented—one pole being attached to the forceps, and the other in the hand of the patient. Tried this but did not like it. Made a saddle to embrace the gum, and found it invaluable when cutting sensitive dentine. Now uses a brass button attached to the pole. This is placed on the gum over the tooth. The other pole is usually placed in the patient's hand. This is very useful when extracting.

When electricity is applied directly to the tooth, it is more unpleasant than when applied to the gum. Has more direct and concentrated current when the pole is applied to the ganglia than when it is held in the hand.

When applying the rubber dam, it is often convenient to use the string in a half hitch. Another way to hold rubber in place, is by a wedge pressed between the teeth by a perforated forceps. The rubber dam is the best protection to the dentist against fœtid breath of patients. Dr. Butler, of Cleveland, always applies the rubber dam before beginning to excavate; can remove the debris with a dry syringe. To avoid danger of periostitis and abscess from the forcing of fluids through the foramen at the apex of the root, when filling, use the hot air syringe, which will dry out the root canal better than anything else.

For trimming down approximal fillings finds a sickle shaped, knife-edged instrument very useful. Rough cloth gives a good finish. Chalk gives the best final polish.

After filling on the grinding surface, always cuts down the gold until the teeth can close without striking the gold, before allowing the patient to leave the office.

Saliva, when exposed to the air, oxidizes so rapidly that there is great danger of making mistakes when testing.

Advocates the use of steel as a material for mallets. Likes nickel plating to prevent rusting. Uses thin shellac varnish for the same purpose.

Dr. Hawxhurst suggested the use of weak collodion to prevent rusting of instruments; the weaker the better, provided a film is formed.

Dr. Ansart says that Dr. Harvey, of Buffalo, when applying the rubber dam over lower molars, in difficult cases, attaches a small piece of leather to the string, and places it so that the leather rests against both the rubber and the tooth, and prevents the string and rubber from slipping.

Dr. Ansart described Bonwell's electric mallet also, an instrument which can be attached to any plugger, and by means of which gold can be used in long strips.

Dr. Hawxhurst said the principal use of Green's pneumatic engine was for trimming down gold and cutting retaining pits—the pneumatic plugger was not so successful.

Dr. McDonneld, after filling approximal cavities, tries to leave no space between the teeth after the operation is finished; otherwise food will lodge between the teeth and be very troublesome.

Dr. Hawxhurst spoke of teeth worn down by occlusion, and asked for a remedy.

Dr. McDonneld always fills such teeth with gold.

Dr. Wallace had such a case where the superior incisors were worn away, and the inferior incisors beveled very thin and sharp. He built up the bicuspids, and cut down the inferior incisors 1 16th of an inch.

Dr. McDonneld says examination of teeth requires great care and nicety. Wedging will often show a cavity which would otherwise escape observation. Must use very fine instruments.

Dr. Robbins recommends making a list of cavities when the teeth are first examined and checking off as we fill.

Dr. G. W. Nelson related the case of a lady who had her teeth examined, just before leaving Europe, by a dentist who reported nothing to be done. Came home and had her teeth examined immediately, and soon after had fifteen cavities filled, some of them large.

Discussion closed.

ANNUAL ELECTION OF OFFICERS.

The following officers were duly elected for the ensuing year:

President—Dr. J. G. Templeton, of New Castle.

Vice-President—W. T. Wallace, of Kingsville, O.

Secretary—C. B. Ansart, of Oil City; *Treasurer*—J. H. Nelson, of North East.

Censors—A. B. Robbins, of Meadville; J. C. Gifford, of Westfield, N. Y.; W. T. Wallace, of Kingsville, O.

Executive Committee—G. B. McDonneld, of Conneautville; C. H. Bagley, of Meadville; F. Herrick, Greenville; J. H. Nelson, of North East; C. D. Elliott, of Franklin.

Delegates to the State Dental Society—F. Herrick, of Greenville; W. M. Martin, of Mercer; A. B. Robbins, of Meadville; J. G. Templeton, of New Castle; C. D. Elliott, of Franklin; J. B. Humes, of Edinboro; C. B. Ansart, of Oil City; E. M Pierce, of Warren, O.

Delegates to the American Association—Dr. C. H. Griffin, of Oil City; C. B. Ansart, Oil City; W. M. Martin, of Mercer; E. M. Pierce, of Warren, O; D. C. Dunn, of Meadville; J. H. Nelson, of North East; J. C. Gifford, of Westfield, N. Y.; G. W. Nelson, of Ashtabula, O.

The executive committee decided on the following essayists and subjects for next year:

Public Addresses—Dental Education, Dr. A. B. Robbins; Mechanical Dentistry, S. W. Tenny; Operative Dentistry, especially Filling of the Teeth, C. D. Elliott; Treatment of Children's Teeth, W. M. Martin; Treatment of Diseased Gums, C. H. Griffin; Dental Pathology, W. T. Wallace; Treatment of Dental Pulps, D. C. Dunn; Why should we Extract Teeth? J. B. Humes; Dental Caries, W. E. Magill.

Censors reported that they had been unable to finish their labors, and asked to be continued, to report next year. Granted. Dr. G. Elliott moved that the next session be continued for three days, beginning on the first Tuesday in

May, and that the fact be mentioned in the Secretary's Circular. Carried.

On motion of Dr. G. Elliott, Dr. Hawxhurst was invited to deliver an essay before the association. Dr. Hawxhurst then read his essay on "The effects of Fœtid Breath on the general Constitution." A vote of thanks was tendered to Dr. Hawxhurst for his essay.

The Association then adjourned to meet on the first Tuesday in May, 1872, in Conneautville, Pa.

PROCEEDINGS OF THE KANSAS STATE DENTAL SOCIETY.

TOPEKA, KANSAS, Sept. 12, 1871.

Society met according to adjournment. President J. B. Wheeler in the chair. Roll was called, and Drs. Fuller, Wheeler, Marvin, Callahan and Patterson answered to their names. Minutes of last meeting were read and adopted. The election of new members was next in order, and the names of A. Doud, of Olathe; L. C. Wasson, of Ottawa; F. De Obert, of Topeka; and C. H. Reeder, of Burlingame, were presented by the membership committee, and after due deliberation they were elected active members of the Society by a unanimous vote, signed the Constitution, and paid the required fee. Society then adjourned to meet at 9 o'clock to-morrow at the parlors of the Fifth Avenue Hotel.

Sept. 13th, 9 o'clock. Meeting called to order by the president, all of the members present. Discussion on operative dentistry ensued.

Dr. Fuller said, I have been filling teeth for the last two years with foil; I use the hand mallet of lignum vitæ; have an assistant all the time. I have an automatic plugger, but use it very little, and prefer the hand mallet used by an assistant.

L. C. Wasson. I strongly advocate the use of Watts' crystal gold; have been using it for the last ten years; commenced its use when first introduced, have used it with great success, and am quite sure that I can make a better filling with it than with foil. I know that a great many differ with me, and that the profession generally is opposed to its use. I think I can restore the lost part of a tooth better and more rapidly, and with the same amount of labor as with foil. Have not replaced more than two fillings where I used Watts' crystal gold. I owe my success with crystal gold to my instructions in using it by good operators and advocates of this form of gold; think the trouble is with many operators that they are not careful enough in its use. I use instruments with very shallow serrations. I have not a word to say against foil.

E. C. Fuller. I think if crystal gold is carefully worked with shallow serrated instruments, a good filling can be made with it. I confess that I do not know how to work it. I use heavy foil especially for building out lost portions of a tooth. I can work it nearly as fast as amalgam. I do not use No. 120 as much as formerly, but smaller numbers of the heavy foil. Think it is not necessary to say much about amalgam. I use os-artificiel for capping nerves—leave it a few days in sensitive cavities to remove sensitiveness. Over exposed nerves I fill with os-artificiel, afterward remove and fill with gold.

J. B. Wheeler. Would it not be better to leave some of the os-artificiel?

E. C. Fuller. Yes, I always endeavor to do so, but sometimes find it very difficult. I think that new dentine is often formed.

L. C. Wasson. I have been using os-artificiel for some time with flattering results. I have seen a good deal about the formation of new dentine, especially in the reports of the Illinois Society. I do not think new dentine forms after the patient is twenty-five years old. I had a case of exposed nerve filled with Hill's stopping; after six months removed and found new dentine formed. Have not had good success in capping nerves in the teeth of old persons.

E. C. Fuller. I do not think best to remove the os-artificiel in so short a time; think it ought to remain for a year if circumstances do not compel the hastening of filling with gold.

A. M. Callahan. I succeed very well in capping with young persons, not with old; with elderly people I destroy an exposed nerve, and make a fang filling. Sometimes fail with young persons also. Many circumstances and conditions regarding the patient influence the success of the operation of capping nerves.

A. Doud. I have not had much experience with os-artificiel. Have used it some. In one case of nerve exposure I filled with os artificiel; nerve was healthy—was compelled to remove the filling on account of pain. My experience is that the use of os-artificiel is almost always accompanied with pain, often very severe, and sometimes destroys an exposed nerve.

L. C. Wasson. The pain is generally saved by cauterization; am careful not to put the os-artificiel in when in too fluid a state, else it will produce more pain than when thick and pasty.

E. C. Fuller. It requires considerable skill to insert an os-artificiel filling; I introduce it so that it does not require pressing.

L. C. Wasson. I do not agree with Dr. Fuller as to the proper consistency of os-artificiel when being introduced. Do not think the fluid portion of the preparation amounts to anything.

Dr. Hewett, of Kansas City, Mo., was in attendance, and was elected an honorary member.

Dr. Hewett said. I have good success with os-artificiel, and use it in the same manner as Dr. Wasson does, and leave it in as long as it will last. I use the Eureka gold filling; it is much tougher than foil, and I prefer it to any other form of gold; have good success in building out with it; use shallow serrated instruments.

C. H. Reeder. I have watched closely the interest in os-artificiel. I use collodion on an exposed nerve before filling with os-artificiel, and recommend it highly. I am using M. M. Johnson's foil.

Dr. Marvin. I coincide with Dr. Wasson in regard to the use of sponge gold.

Dr. Wheeler. Have been and am using os-artificiel. I have a case of three molars with exposed nerve, os-artificiel filling have been in for nearly a year, I intend replacing with gold in a short time, leaving part of the zinc. A question with me is, whether decay will be more likely to ensue with os-artificiel over the nerve than with gold.

E. C. Fuller. I think, when possible, it is probably better to remove all of the zinc. I saw a case filled by Morrison, of St. Louis, where the os-artificiel apparently softened the dentine.

Dr. Wheeler. I think such is often the case. In filling, I use the rubber dam to a limited extent; the more I use it the better I like it. I made a failure with crystal gold, however; it may be the fault was mine. I have injured my practice with it. Do not like Morgan's gold.

Dr. Marvin. I used Lamm's gold, but became disgusted with it.

Dr. Wheeler. I think that men in high standing in the profession did wrong in giving favorable certificates to Lamm's and Morgan's gold.

Dr. DeObert. Can os-artificiel always be used on exposed nerves? is it advisable to use it after considerable pain has ensued by exposure?

Dr. Wheeler. Not always. I would ask Dr. Wasson if he uses Morgan's gold?

Dr. Wasson. I have never used either Morgan's or Lamm's, but am much pleased with the Eureka gold.

Dr. Wheeler. I always cap a healthy nerve, whether in old or young persons. I think it often dies in old persons, but often the foramen is so closed that no harmful result ensues from the putrid matter engendering inflammation. A lady applied to me to have a tooth pivoted, the root healthy; some would have preferred building out, but I decided to pivot; there was no sign of a pulp chamber; but after drilling nearly to the end of the root, I found a healthy nerve I often fail with ulcerated teeth and cases of abscess. I think the hygienic treatment is not used enough; have used creosote, iodine, etc.; better let medicine alone, and cleanse better. I prefer in superior teeth to not stop the cavity at all; give plenty of time. I would not try to cure when scurvy is in the system.

Dr. Callahan. How do you get rid of the pus in the lower jaw.

Dr. Wheeler. It is difficult. I cleanse often, and keep the cavity closed.

Dr. Patterson. I have paid considerable attention to this class of cases, and in practice have often been successful enough so as to warrant zealous perseverance to cure ulcerated teeth. Have not used the heroic treatment, but rather the palliative. In upper cases I do not close the cavity, so that matter can not escape from the root; a pellet of loose cotton in the cavity of decay will absorb any discharge, and prevent unpleasantness in the mouth. I am very careful not to be in haste about filling. I have found cases that I could not cure so as to make it safe to fill in the usual manner, and I adopted a mode of procedure given in the *American Journal of Dental Science* by J. L. Dodge; cleaned out the cavity and roots thoroughly, filled the crown cavity and major part of the pulp cavity, leaving the nerve cavity and lower part of the pulp chamber vacant; and after completing, made an opening with a small drill under the edge of the gum into the unfilled portion of the pulp cavity, affording a passage for any matter that would accumulate. I have four of these cases, some of one year's standing, and the teeth have not given trouble. The discharge, if any, is not noticed. I have seen but two cases where the heroic treatment of cutting the secreting sac from the root with an instrument was used, and the treatment in both cases failed; one of them was in my own mouth.

Dr. Wasson. In a case of ulceration of an upper molar, I cleansed with tepid water; could not reduce the inflammation; I then introduced a tent through the fistula, treated with carbolic acid and iodine, and finally cured and filled with gold; it is now solid.

Society now adjourned to meet at 2 o'clock at Dr. Callahan's office for the purpose of witnessing a clinic by Dr. Wheeler, viz., the filling of a tooth, using the rubber dam, when a difficult case was successfully filled.

In the evening the Society met and discussed mechanical dentistry.

Dr. Callahan. I am using rubber almost entirely as a base. I put up a few cases of Watt and Williams' metal, and one of Weston's metal. I prefer Watts' base to that of Weston's.

Dr. Reeder. Have used rubber with very good success. Some claim that rubber can not be worn without detriment to the mouth. I do not think there is cause for such fear.

Dr. Marvin. I now never take an impression in wax, and get along very much better. Do not use metallic plates for upper sets, sometimes I do for lower. I sometimes load a lower rubber plate with lead; weight is very necessary in lower plates, make air chambers with lead. Some plates should have a deeper chamber than others.

Dr. Doud. Our processes for rubber are much the same. I use tin for air chambers, and coat my cast with liquid silex: take impressions for partial cases with wax.

Dr. Patterson. My process for rubber is much the same as that of those who have spoken. I think there is not enough attention paid to this department of dentistry. I think there is, in inserting artificial teeth, room for the exercise of a higher talent, than inserting fillings afford, only to a limited extent, however, when block gum teeth are used. I use the plain teeth whenever I can. Operative dentistry of course merits our first attention, as its aim is the preservation of the natural teeth; but the replacing of the natural organs with artificial ones has not received the attention it deserves, and for that reason has been a fruitful source of charlatanism, and I think it is the fault of the profession that it is so. As long as we give so little attention to this department of dentistry, we must not find fault with "cheap work," because we *treat* it as cheap work; if the insertion of artificial teeth requires no skill save purely mechanical,—no dental education as many claim,—then let us give it over entirely to mechanics and those who have no dental education.

E. C. Fuller. As far as I have used rubber, it certainly has merits above the other bases. I feel biased in favor of operative dentistry as compared with mechanical, and am an advocate of the use of plain teeth—can articulate better with them. Do not believe in loading the rubber with lead. I like Weston's metal tolerably well; have never used Watt and Williams'.

L. C. Wasson. I use soap to separate. I do not think air chambers are necessary. I think operative dentistry is superior to mechanical dentistry; in making artificial teeth the process is the same in every case and purely mechanical.

Dr. Wheeler. I have seen dangerous effects of red rubber. I think in many cases it is wrong to put it in. In a case where a patient wore red rubber, he complained of an itching sensation in the parts contiguous to the plate. I made a plate of black rubber, and the difficulty was entirely avoided.

E. C. Fuller. Have noticed ill effects from wearing a plate. Do not know whether it was effect from mercury or not.

L C. Wasson. I think a plate of any material will often produce ill effects; do not attribute it to red rubber.

The discussion here turned to filling teeth with amalgam, and the practice was condemned; tin was recommended to be used for cheap filling.

The general interests of the Society were discussed at length, then adjourned to meet at Atchison, May 2d, 1872.

J. D. PATTERSON, *Recording Sec'y.*

PROCEEDINGS OF THE MICHIGAN CENTRAL DENTAL ASSOCIATION.

A meeting of this body was held at Battle Creek on July 12th and 13th, at the parlors of the Potter House. Members were present from Olivet, Eaton Rapids, Kalamazoo, Lansing, Jackson, Marshall, Grand Rapids, Ann Arbor, and other towns throughout the State.

Officers:

President—Dr. D. C. Hawxhurst.

Vice President—Dr. L. C. Whiting.

Secretary—Dr. H. P. Peterson.

Corresponding Secretary—Dr. Geo. H. Cole.

Treasurer—Dr. T. A. White.

After some general business, the regular discussions of the society were opened by an essay from Dr. Geo. P. Holmes, on "Professional Ethics." He thought that every dentist should array himself in the garb of true gentlemanliness in which to meet his patients. He should also exhibit the most scrupulous courtesy in his dealings with his professional brethren. But even these shining qualities are of comparative insignificance without a basis of true integrity. Possessed of these qualifications and the requisite energy, his road to success would be of easy access. The "Dr." and "M. D." upon cards and signs are of little value. Society has so often been cheated by them, that he who flourishes the most, ever making them conspicuous, is looked upon with suspicion. The prevalent system of advertising was productive of much harm. Cards, handbills, posters and show case advertisements, calling attention to the "unsurpassed facilities," the "extensive experience" of the undersigned to produce a "peculiar style of work and cheaper than any in town," savors strongly of quackery and should be disapproved by the association. He recommended the adoption of the "Code of Ethics" of the American Dental Association. It was a high toned professional production, a copy of which should be hung in the office of every dentist.

He approved of such a form of advertising as would be instructive to the people in whatever form it should be gotten up. He hoped the Association would adopt a Code of Ethics.

A long discussion followed. Dr. Smith was opposed to that part of the Code of Ethics (recommended by the essayist) which prohibited advertising. Thought our association was a primary school and ought not to be so strict with its members as the national association. We must be content with the gradual progress of our members, and not expect them to make the whole distance at a leap. Besides, advertising is right, if done properly. All excellence should make itself known. All legitimate business succeeds by advertising. People expect it. If a man can do something well, why not allow it to be known? But a style of glaring quackery need not be adopted. The standard of the profession should be dignified. Without this titles and degrees are nothing. If a man is introduced into our association he is our brother, provided the examining committee have done their duty. If he violates the principles of professional dignity and right practice, let us report him.

Dr. Cole moved the adoption of the Code of Ethics. Thought that there were other ways of advertising except by cards, handbills, etc. Every dentist could write articles for his local paper that would instruct the people, give him wide notice, and at the same time, furnish some evidence of his abilities and real qualifications. The subject matter should be exclusively scientific.

Dr. Fuller thought perfect works the best advertisement.

The discussion was long and animated. Most of the members participated. We have given enough to indicate the general character of this session, which was closed by the adoption of the Code of Ethics.

SECOND SESSION.

Dr. Cole opened with an essay on "Inspiration through the Mouth." Said a beat of the heart and a breath of air are all that separate us from death. How important, then, that this breath be free from foreign matter. Prof. Tyndall has shown that in iron factory air there are minute particles of carbon, ash, and iron; in shirt factory air are microscopic filaments of linen and cotton; in air of flouring mills and oat mills are fibrous fragments, starchy grain and spores; antimony is found in air of printing offices and in type foundries Dirty air, entering the lungs, must irritate the delicate membranous surfaces. Prof. Tyndall further discovered that of all the dust constantly entering the lungs, none was thrown off. Are we to conclude that it remains in the system? Respiration through the nose will strain the air of these atoms. The extensive moist surfaces of the schneiderian membrane catch the floating atoms and absorb odors. In treating patients who have bad breath, the practitioner should breathe through the nose. Colds often result from taking the frosty air of winter directly into the lungs without a preparatory warming through the devious corrugations of the nasal passages.

The essay was discussed as follows: Dr. Holmes thought the question important. The nose is a filter; it is the natural purifier of the inspired air; especially when working over decayed teeth we should breathe through it. Some patients have breath that is simply disgusting; we should not work for them until some means is taken to make the breath sweet. That source of bad breath which is most difficult of treatment is catarrh—a peculiarity of this country.

Dr. Smith thought breathing through the nose not always advisable. In nasal catarrh the inspired air thus becomes ladened with heavy vapors, injurious to health. Would it not in such cases be better to breathe through the mouth, and get a purer air?

Dr. Cole could not agree with Dr. Smith. If the nose isn't fit to breathe through, cleanse it, wash it out, and make it fit to breathe through. Nothing but harm can come from a disuse of the nose. Like any other neglected part, it rapidly deteriorates, its passages diminish, its membranes dry up. The nose must be used in catarrh, even if you have to rinse the entire passages hourly.

Dr. Way, President of the Northern Ohio Dental Association, thought the breath of a catarrhal patient worse than any other; thought it the most common cause of bad breath; considered it very exhausting to work for such patients, and certainly very unpleasant. With reference to bad taste, which had been so much talked about, thought it due to drying or evaporation of saliva, except where the mouth was not cleansed well with a brush; in such cases the mouth might be foul from ferment of fragments of food. People do not well clean their teeth. The brush inserted, a few motions made, and the mouth is thought to be clean. Thought if we were called upon to choose between tooth pick and brush, we would choose the former, though we would prefer both. The tooth pick reaches between the teeth best.

Dr. Hawxhurst asked Dr. Smith to take the chair while he responded to a call from the house. Would direct attention to the cotton respirator, as a protection against bad breath. Its fine meshes strain off and absorb bad odors from the patient. It divides the inspired air into a myriad of fine streams, which flow over the dampened fibres of cotton, which entangle and keep back particles of floating dirt. It should be often cleansed. Regards the nose as the natural respirator. By the corrugation of its extensive surface. as well as the moisture of its membranes, it deodorizes foul air. Foul atoms are promptly caught in its moist and devious passages. It is a delicate instrument, and must be kept in good order. Fumes and gases from an overloaded stomach may dry up its passages and make it little better than a tin pipe to breathe through. It will neither keep foul odors back from the lungs, nor assure its possessor that his person and office are not offensive to patients. Thinks a good nose of more importance than deodorizers, since it teaches when to use them.

THIRD SESSION.

Discussions opened on the subject: "Morbid Conditions of the Mouth and their Treatment." Was participated in by Drs. Bartlett, Jackson, Robinson, Smith, Cole, Penniman, Holmes, and others. The technicalities of medicine, chemical nomenclature and the language of pathology reigned supreme through this discussion, and we pass to other matters of greater interest to the public.

Following this was an essay by Dr. Peterson, on Nasal Catarrh, which was too learned and scientific for general reading. While speaking of the causes he gave some cases in which neglected roots had induced nasal catarrh. Thought that diseased molars, whose roots extend near the antrum, are liable to aggravate it. Referred to a case which was cured by washes of dilute permanganate of potash. Advised homœopathic treatment.

A lively discussion followed, during which Dr. Robinson related a case of extreme bad breath from catarrh. He advised the simple douche of salt and water. It not only gave immediate relief, but effected a permanent cure. Considered it best given by aid of a rubber-bag syringe, kept by druggists.

Dr. Jackson read an essay on "The Best Preparation of Gold for Filling Teeth." The Doctor thought there was much difference of opinion among dentists on this subject. Whatever the form used, much depends on the mode of working it. What with one would be a failure, with another would be a success. Most operators have fallen into some one method of filling, and can use that form of gold best to which it is adapted. Some operators are intelligent enough to work each form of gold by its own method. Such are successful with all, and use all, at times. There is no *best* form of gold. Then followed an exceedingly able and discriminating description of each preparation and the cases in which it should be used. The essay being finished, a long discussion followed, by Drs. Way, Jackson, Smith, Robinson, Bartlett, and numerous others. The matter was too technical to be of interest to the public.

Dr. Hawxhurst gave a plan for furnishing the association with instruction. He regarded it of great importance that we keep ourselves informed on the subject of improved methods of practice. A whole army of ingenious intellects are constantly devising better modes, inventing better instruments, and discovering new principles. Unless we wish to be left in the rear, we must possess these improvements. Thought we ought to send for such men as Taft, Allport, Watt, Atkinson and Palmer, and pay them for lecturing to our association; would recommend Dr. Corydon Palmer, to assist us at our next meeting. Drs. Way and Robinson spoke in high commendation of Dr. Palmer, and favored the plan.

The following motion was carried by vote: That Dr. Corydon Palmer, of Warren, Ohio, be requested to give a two days' course of "Demonstrations on Practice," before the Michigan Central Dental Association at its next meeting."

Another motion was passed, empowering the Corresponding Secretary to arrange terms with Dr. Palmer.

Dr Hawxhurst read a long essay on "The Relation of the Microscope to Dental Practice." It was well written, but too technical for public reading. It was received with strong marks of favor by the association.

Another motion was adopted, as follows: That the house appoint a committee on general interests of the association, whose duty it shall be to investigate the subject of publishing association reports; to observe and report the advertising practices of members; to suggest methods of instruction for the association; to enlarge the membership; to study how to make the meetings of the association interesting; and to oversee its general interests.

Drs. Hawxhurst, Robinson and Penniman were appointed.

It was moved and carried that the next meeting be held at Jackson, on the second Wednesday of January, 1872.

A vote of thanks was tendered to the proprietor of the Potter House of this city, for his courtesy in opening his parlors for the meetings of the association, free of charge.

Meeting adjourned.

SOUTHERN DENTAL ASSOCIATION.

During the meeting of the Southern Dental Association, held in Charleston, S. C., in April, 1871, the Committee on Memorials offered the following resolutions, which were unanimously adopted.

"The committee appointed to draft suitable resolutions in reference to the death of Dr. T. J. Crow, of Macon, Ga., and Dr. Warren Johnson, of Savannah, Ga., beg leave to offer the following:

WHEREAS, It has pleased Almighty God to take from us two of our beloved brethren; and

WHEREAS, It not only becomes us, but it is our mournful duty, to pay a worthy tribute to the memory of those who have been so long identified with us; therefore

Resolved, 1st. That in the death of our brethren, we recognize the hand of an Almighty Providence, and though with grief we mourn their loss, we bow with submission to the decree that has deprived us of those who won our highest esteem by their devotion to the interests of our profession, and who endeared themselves to us by their kindness of heart, which rendered them ever ready to alleviate the sufferings of humanity.

Resolved, 2nd. That we give expression to our fervent trust, that *our loss has been their gain*, inasmuch as they were ever known as faithful dentists, thorough gentlemen, and upright, patriotic citizens.

Resolved, 3d. That a page in the book of minutes of the Association, be dedicated to their memory.

Resolved, 4th. That a copy of these resolutions be forwarded to the several dental journals for publication; and, also, to the relatives of our departed brethren, with the assurance of our heartfelt sympathies in their bereavement.

(Signed.)

H. J. ROYAL,
W. H. BURR,
H. A. LOWRENCE. } *Committee.*

O. J. BOND,
Rec. Sec., S. D. A.

EASTERN OHIO DENTAL ASSOCIATION.

An adjourned meeting of a preliminary organization for the purpose of forming a dental association, was held in

Canton, on Tuesday, August 29, 1871, in J. H. Siddall's rooms.

Dr. Lyder, of Alliance, in the chair.

Dr. McLain, of New Lisbon, chairman on constitution and by-laws, reported having procured a copy of the constitution of the Northern Ohio Dental Association, which was adopted with some alterations; the name chosen being the Eastern Ohio Dental Association.

The following officers were elected for one year:

President—J. C. Whinery, of Salem.

Vice President—J. W. Lyder, of Alliance.

Secretary—D. B. McLain, of New Lisbon.

Treasurer—A. J. Douds, of Canton.

Examining Committee—J. H. Siddall, Canton; J. M. Porter, Massillon, and C. M. Richmond, of Garrettsville.

Convention adjourned for dinner, and were hospitably entertained by Dr. Siddall.

After dinner the following dentists were present: J. H. Siddall, L. A. Hole, W. A. Porter, J. M. Porter, C. M. Richmond, J. W. Lyder, D. B. McLain, J. Craig, and A. J. Douds.

There were no members belonging to the association yet, as all must pass an examination and be recommended by the examining committee who report at next meeting, the names only of those found worthy.

Dr. J. M. Porter read a very able paper on the pathology and treatment of alveolar abscess. The subject was then discussed by nearly all present.

The subject of filling with smooth pointed instruments was next discussed, Dr. J. M. Porter having performed a clinical operation by that method in the forenoon.

The subject of specialties in dental practice was warmly discussed.

The following subjects were selected for discussion at the next meeting: Anæsthesia, The Gums and their diseases, When is Extraction Indicated?

After passing a vote of thanks to Dr. Siddall, for the use of his rooms, the society adjourned, to meet in Alliance, on last Tuesday in February next.

Alliance is the permanent place of meeting, and the meetings are to be semi-annual.

D. B. McLain, *Sec.*

Editorial.

STATE SOCIETY.

On the 5th of December, prox., will be held the annual meeting of the Ohio State Dental Society, at Columbus, and we trust there will be a large and efficient meeting, one that shall clearly make manifest that the spirit of progress, so fully shown in former meetings is onward and upward. Let no one who has hitherto put his hand to the work in this direction turn back—but take courage and gain strength, for accomplishing more than ever before. The profession in Ohio has a great work before it, and so soon as the present instrumentalities for good are in proper exercise, and accomplishing their work with facility, new instrumentalities and new methods will present themselves. When the present fields are under proper cultivation, new ones will be opened up.

The progressive spirit of the age, pervades the dental profession, not less than other departments of human occupation, and upon those who are actors, new duties are continually devolving.

Let every member come up to this society fully impressed with the responsibility that rests upon him, and with a fixed resolution to fulfill his mission. Let the principles and influences that pertain to the profession, be so molded and directed, as to secure the greatest good to all concerned.

We hope to greet every good member of the profession in the State at this meeting, and let it be a time of encouragement, of adding strength and power, not only to individuals, but to the profession of our State. T.

THE STATE BOARD OF DENTAL EXAMINERS.

The annual meeting of this Board, will be held on Wednesday, December 6th, at 12 o'clock M., at the American Hotel, in Columbus. It is desirable that all who design meeting that Board, should be promptly present at that time, that the work may be despatched as speedily as practicable. T.

MATERIAL SUPPLIES FOR OUR PROFESSION.

When we remember the manner in which our profession was supplied with all instruments, appliances and materials, twenty-five years ago, and now contemplate the manner in which it is done, it affords matter of wonder and astonishment.

Thoughts like this recently ran in rapid succession through our mind, while making, or endeavoring to make an examination of S. S. White's Dental Depot, in Philadelphia. He has as a beginning, in many respects, the finest building we ever saw, completely fireproof, and of the most substantial character throughout.

The establishment consists of numerous departments, each with its battalion of workmen, controlled and directed by a superintendent, and all these by one director-general. Every department is supplied with all the facilities, that the most extended acquaintance, and familiarity with its requirements can devise, and the most lavish expenditure of money procure.

In all these departments, the most persevering and extended course of experiments have been conducted, with a view of attaining the highest results, in the procurement of instruments and materials for the dentist's use.

In one department alone within the last three years, over forty thousand dollars have been expended in experimenting with steel. Many of the processes employed in this establishment have no equal in this country, neither in the manner of accomplishment nor in the results obtained. Here are talent, genius, and capital combined in an eminent degree, and co-operating in the production of that which shall be most efficient in mitigating or relieving some of the greatest afflictions to which our fellow men are subject. T.

TO THE PROFESSION.

At the last meeting of the American Dental Association, a Committee on Local Societies and Conference with the Profession was appointed. The following persons constitute that committee: Prof. H. Judd, St. Louis, Mo.; Prof. J. Taft, Cincinnati, O.; Prof. H. W. Atkinson, New York City; Prof. L. D. Shepard, Boston, Mass.; Dr. Wm. Dutch, San Francisco, Cal. The object of this committee is to aid and encourage the organization and efficient operation of local societies, hold clinics, etc., wherever and whenever opportunity may offer. T.

THE

DENTAL REGISTER.

Vol. XXV.] DECEMBER, 1871. [No. 12.

Communications.

CHEMICAL NATURE OF MALARIA.

BY D. VAUGHAN, A. M., M. D.

Read before the Meeting of the Cincinnati Academy of Medicine, Monday, November 20, 1871.

From the peculiar manner in which the physical organization of man is adapted to the normal condition of the material agencies to which he is exposed, he is occasionally doomed to suffer not only from evils implanted in the human frame, but also from the great operations and changes transpiring in the external world. While the blessings of health are liberally dispensed in many parts of our globe, there are certain regions in which the afflictions of disease are felt with the greatest severity, and where they form the chief portion of the calamities which the human race have to endure. Though the unfavorable degree of heat or cold prevailing in many lands, or the great changes to which temperature is subject, may be detrimental to health, yet in numerous cases disease depends on causes of a more obscure character. At the close of the last century, when discoveries in pneumatic chemistry had given a vast extension to the domain of positive science, it was expected that an analysis of the air in unhealthy districts would reveal the cause of their insalubrity. It was soon found, however, that these hopes could not be realized by the labor of subsequent experimenters. No connection could be traced between the prevalence of diseases and the complement of oxygen, nitrogen or carbonic acid in the air; and the early methods of endiometry devised for finding the proportion in which these gases float around us were soon abandoned as uncertain and useless for indicating the great dangers which threaten the integrity of the human frame.

Although some doubts may exist in regard to the endemic character of many diseases, the connection of one class with certain localities seems to have been well established by all modern observation and experience. It is well known that the destructive inroads of intermittent fever are chiefly confined to those districts where the land is always impregnated with a superfluity of water, and rendered capable of filling the surrounding air with aqueous vapor. The resulting evils assume a more deleterious character in the marshes of warm climates, and their great severity is manifested when the fall of rain increases the amount of moisture in the land and in the air. As these moist localities are almost invariably the seats of a luxuriant vegetation, it has been generally supposed that their unhealthy condition arises from the decay of vegetable matter, which is produced so abundantly during summer. Carbonic acid, carbureted hydrogen, and other gases resulting from decay and putrefaction, have been frequently regarded as identical with the poisonous principle of marsh exhalations. Yet this opinion is rejected by more careful observers, as it is known that where these gaseous bodies are evolved in the greatest abundance their influence on the human frame, though often very injurious to the health, is not capable of developing any symptoms or affections analogous to those of intermittent fever.

But the more recent improvements in chemical analyses have served to show that the atmosphere has a more diversified composition than was first assigned to it by Lavoisier and his contemporaries. About thirty years ago Saussure found that when air from which the carbonic acid was removed was detonated with hydrogen, a small portion of carbonic acid was produced, thus evidently indicating that there must be carbon in some other form in the atmosphere. It was subsequently found by Boussingault that when perfectly dry air is passed over red hot oxide of copper a small amount of water is always generated. From these two experiments it was first inferred that carbon exists in the air, not only as carbonic acid, but also in the form of carbureted hydrogen. But this conclusion was not warranted by the experiments, as the result attending them would be caused by the presence of most kinds of organic matter. The existence of such matter in the air was subsequently rendered evident by the change which nitrate of silver sustains from long exposure. But a more satisfactory means of settling the question has been recently afforded by the use of permanganate of potash, and Dr. Angus Smith, of England, employing this reagent for the estimation of aerial organic matter, has found, among other important results, that an excessive quantity is contained over stagnant pools of water.

Though it may be impossible to ascertain by a direct analysis the various kinds of animal and vegetable matter which float in minute quantities in the atmosphere, yet some information on the subject may be obtained by examining the different sources from which this matter is supplied. As there is a far greater portion of carbon embodied in the vegetable than in the animal kingdom, it is on the changes attending vegetation that the amount of carbonaceous materials in the atmosphere mainly depend.

We are generally taught to look upon plants as mere fountains of oxygen gas, and to regard their vital functions as the great agency for renovating the air which has been rendered impure by the respiration of animals. But a closer examination of Nature will compel us to modify this pleasing picture which has been given of her operations by a theory which is not wholly as correct as it is beautiful. Without attaching any credit to the extravagant stories of the Upas tree, whose poisonous exhalations are said to be fatal to life for many miles around, there are many facts to show that it is not only during decay, but even in the course of vigorous vegetation, that plants add to the impurities of the air and increase its insalubrity.

Of all vegetable productions, the alkaloids, with few exceptions, hold a prominent place among the most deadly poisons known to the chemist. But in the very limited number of plants which produce them, these poisonous substances are found only in a small quantity; few of them are volatile, and there seems to be no possibility of their mingling with our atmosphere in a proportion which might be injurious or dangerous to the human frame. From the vegetable acids there is still less to be apprehended, as they are for the most part less deleterious to life, and as their great solubility in water is sufficient to remove them from the air. But the organic compounds which flow more rapidly into our aerial ocean, and at the same time partake most of the characters ascribed to malarious emanations, are the volatile or essential oils which are constantly emitted by living and decaying plants. From the emission of these volatile principles generally arises the peculiar smell or the perfume which the various parts of plants diffuse. Their presence in summer produces the pleasing or occasionally the disagreeable odors of our fields and forests; and the delightful fragrance of the groves of tropical climates give indications of the abundance in which the vapors of these oils are poured into the atmosphere.

That this class of bodies form an important part of the malarious emanations of marshes may be inferred from their ready vaporization and from the manner in which it is influenced by heat. Though most of the essential oils have their boiling points ranging between 300 and 450 degrees Fahrenheit, they emit an appreciable amount of vapor at extremely low temperatures. It may appear singular that liquids so reluctant to boil should be so volatile or so ready to evaporate; but this apparent anomaly is the necessary consequence of the great density of their vapors, and they observe a conformity to Dalton's law in regard to vaporization. Thus, for instance, of spirits of turpentine, which boils at 316 degrees Fahrenheit, the vapor would have at 100 degrees the same tension which that of water has at 4 degrees below zero, and this, according to the experiments of Gay Lussac, may be estimated at 1-600 of the atmospheric pressure. From this we may calculate by the law of Mariotte that the vapor would be 600 times more attenuated than it is at the boiling point, when the density is 4.76, or nearly five times that of air. From this it may be estimated that at the temperature of 100 degrees the air is capable of permanently holding in a state of diffusion 1-125 of its weight of the vapor of spirits of turpentine.

Without insisting on the absolute universality of Dalton's law, I am convinced that it will apply without any material error to the vaporization of the essential oils. As in the case of evaporated water, it is the power of heat alone that determines the amount of these bodies which can exist as vapor in a given volume of air or in a given space. At the temperature of 75 degrees, 500 parts of air would be capable of holding in this manner two parts of the vapor of spirits of turpentine, but it could retain only one part if the temperature were reduced to 50 degrees. As most of the volatile oils have a much higher boiling point than the one I have selected for illustration, they can pervade the atmosphere in a more attenuated condition. It would require about 2,000 parts of air at the temperature of 75 degrees, or 4,000 at 50 degrees, to hold in a state of vapor one part of the oil of Spirea, which boils at 383 degrees Fahrenheit. Generally, the ferment oils, and others which contain oxygen, have the highest boiling points, and require a higher temperature to maintain a given portion of them in a state of vapor above the earth's surface.

From the very limited amount of these bodies that can float in our aerial ocean, and the influence of heat on the existence of their vapors, there can be little doubt that in the marshes of warm climates, the great luxuriance of vegetation and also its decay would cause the air to be saturated with these volatile oils during the day, and that they would be deposited at night like dew, but in a less perceptible quantity. As evidence of the dependence of intermittent fevers on such exhalations, I may refer to the circumstance that in the most unhealthy districts where it prevails malaria assumes an increased malignity during the night. The fact seems to have much engaged the attention of medical writers, and Elliotson concludes that at night the malarious poisons must have been deposited from the air. That in the absence of any volatile or aerial poison mere changes of temperature might be productive of such distempers can not be admitted, as these changes are far greater in the dry and colder localities, which are comparatively free from intermittent fevers. From the researches of Tyndall, it appears that not only clouds, but even moist air, impede the radiation of heat, and, by thus preventing the earth from receiving too much heat during the day, and parting with much at night, they tend to avert great fluctuations in the thermal condition of climates.

The warmest regions of the earth produce most abundantly the volatile oils, as well as other organic compounds containing little or no oxygen, as if the separation of this element from carbon and hydrogen required all the energy which heat confers on vegetative power. As water contributes to the luxuriance and vigor of vegetation, it must also increase the production of these volatile bodies, and send them more rapidly into the air by a kind of exhalation peculiar to vegetable life. The agency of this fluid on dead organic matter is attended with similar effects. The essential oil of (spirea) and that of bitter almonds are indebted to aqueous action for their origin, and generally, in accelerating decay and putrefaction, water is the means of introducing numerous ferment oils into the atmosphere. But it is to the slight solubility of these volatile bodies in water that we must ascribe much of the evil effects with which rains, and especially occasional showers, are attended in malarious districts. The volatile oils which rise high above the ground are brought down by the descending drops of rain, and the water thus impregnated with them becoming warm, they are again exhaled from the soil; but they are rendered more injurious to man by being thus confined to the lower stratum of the atmosphere and diffusing themselves throughout its mass.

The foregoing principles will serve to explain some facts which are at variance with the received theory of intermittent fevers These diseases do not withhold their attacks until the work of decay proceeds on any considerable scale; but they commence and often display their greatest malignity when vegetation is in its greatest vigor, thus showing that they are at least as much dependent on the exhalations of living as of dead plants. In many cases, also, their attacks begin so soon after rain that they can not depend on the results of putrefaction alone. The insalubrity of marshes appears to have some dependence on the kinds of vegetation which they produce; as, for instance, heat formations, though always in a moist condition, are free from malaria, and the exemption is principally due to the absence of plants capable of affording the noxious volatile oils during their growth and decay.

Apart from the effects which I have ascribed to occasional showers of rain, the great density of the vapors of the essential oils would tend to keep them close to the earth's surface, and thus render them more capable of affecting the human frame. Even in the absence of chemical union, unequally dense gases would mix with uniformity; but to the law of diffusion observed in these results in gaseous mixtures, vapors do not strictly conform; and when their tension and expansibility are feeble, their position is determined by their specific gravities—the heaviest sinking to the lowest stratum of air. A like deviation from the principle of mutual diffusibility seems to prevail in gases when highly rarified, as the upper part of the sun's atmosphere consists mainly of hydrogen gas, the lightest body known. It has, however, been proved by Faraday's experiments that heavy vapors are incapable of rising above a certain level, so that the vapors of the volatile oils must be confined to the lower stratum of the atmosphere, and thus rendered more injurious to man.

But the most conclusive evidence on this question is afforded when the inevitable changes which these emanations must undergo is taken in connection with the peculiar manner in which malaria is known to decline. From observations made in Italy it has been found that the virulence of marsh poison is manifested not more than three miles from its source. During the short time of its diffusion within this range it loses its noxious properties, and there is no class of vegetable productions which change so rapidly as the essential oils, especially after their vaporization. If exposed to air in a liquid form, they gradually become resins by combining with oxygen; but when blended with the atmosphere in a state of vapor, their oxidation and change to resins must take place with far greater rapidity. It is the oxidation of the volatile oils which some flowers emit that gives them a temperature higher than that of other parts of the plant; but in their tendency to oxidize these bodies exhibit much difference, though not to the same extent as the fixed oils.

It may be necessary, however, to extend our inquiries to a consideration of the manner in which the human frame could be so seriously affected by vapors or exhalations from which little danger might be apprehended. Oxidation converts the volatile oils into resinous bodies, many of which are used in the art as varnishes, and are adapted for the purpose chiefly on account of their insolubility in water. The destructive effect of the vapor of turpentine to insects may be ascribed to the resinous coating which, by oxidation, it forms on their bodies, as this would impede, to a fatal extent, the function of respiration, which in this class of animals is chiefly performed through the skin. But as in man there is between thirty and sixty times more carbonic acid exhaled from the lungs than from the skin, the same fatal effects could not be reasonably expected to follow from the entire suppression of cutaneous respiration, even though essential oils were abundant in the air to produce it by giving the body an impervious coating of resinous matter. A widely different opinion has been drawn from the experiments of Becquerel and Breschel, who found that on varnishing rabbits, after shaving off their hair, these animals rapidly declined in temperature, and died in a short time. But it does not seem legitimate to attribute the fatal effects exclusively to the suppression of cutaneous respiration, as there is reason to believe that the impervious coating might obstruct or interfere with the functions of the nervous fibers in the vicinity of the surface of the body, and in this way seriously affect calorific and vital action.

In our inquiries respecting the origin of animal heat, we must admit, with the chemist, that in every department of nature the creation of heat is impossible, and that the chemical changes transpiring in the human system are adequate to supply the amount of it necessary for the maintenance of life. We can not, however, ignore the results of those important physiological experiments which prove the dependence of vital heat on nervous action and the integrity of the nervous tissues. From the several facts which have been adduced to support the two rival theories on this subject, it seems reasonable to conclude that animal heat is the offspring of a chemical action which the blood undergoes, but which the nerves instigate and maintain by supplying it with matter more disposed to oxidize. That this property is very prominent in nervous and cerebral matter, is known from the result of experiments. As a small quantity of dry wood is so often the means of kindling the largest coal fires; as a little yeast, or some other nitrogenous matter, brings into fermentation a large amount of dissolved sugar; as the minute portion of the fulminating compound in cartridges inflames the gunpowder in modern firearms and makes them deal destruction among contending armies, so the little matter given by the nerves originate and keep up the oxidation of the blood. As this must be attended with a caloric influence, the nerves are thus instrumental in producing an amount of heat perhaps several hundred times greater than could arise from any chemical action in the matter inclosed in their tubes or tissues.

From some recent experiments and researches of Frankland, it appears that the muscles are the seats of the combination of the blood with the oxygen taken in at the lungs. My own investigations have, indeed, led me to a similar conclusion, but they show, also, that oxidation is most active at the point where the fibers of the motor nerves terminate in the muscles. Now, if, through the medium of endosmosis, cutaneous absorption or the aeration and circulation of the blood, any essential oil were introduced into the muscles, their oxidation about the entrance of the nerves would form resins, which, instead of being removed from the system, would only serve to obstruct or to seal up the nervous tubes, and thus diminish or suspend caloric action. In most cases, however, these barriers or restraints would be removed by the pressure of matter accumulated in the nerves or by some vital reaction, an excessive oxidation of the blood and development of heat would then take place, but the resinous matter would still remain, and with its aid the volatile oils impregnating the system would require only a few days to obstruct again or to stop the communications between the nerves and muscles.

In this manner we may account for the chill with which intermittent fever commences, the subsequent heat and sweating, and the recurrence of the paroxysm every few days. As some of the ferment oils have the character of alcohols, they would not act in the precise way I have described, but they might prove injurious to the system by dissolving the fatty matter, and, on losing their solvent power by oxidation, depositing it at the junction of nervous and muscular fibers. When, in consequence of the debility of the human frame, or the great abundance of vegetable poisons, the fatty or resinous obstructions can not be removed, remittent fever may result, either from some rupture of the nervous tissue, or from the imperfect manner in which the blood is oxidized.

But the existence of the latter class of diseases, or at least their malignity, seems to depend on poisons generated in the human frame, and it is perhaps to changes in animal matter that we are to look for the origin of those poisons and miasms which have the most noxious characters, which retain them for the longest time and diffuse them over the widest range, as they are transported to distant localities by the flow of rivers or by those great currents of air which are in perpetual motion over the surface of our planet.

ANÆSTHESIA.

Messrs. Editors.—On returning from Europe a short time since, I picked up your valuable journal, of April, 1870, and noticed a communication under the caption of "Anæsthetics in Surgery—Who Discovered It?" This article, though in the main correct, contains some misstatements, and omits some facts which I think are important to a full understanding of the subject. I agree with you, and with all impartial judges who have examined the subject, in giving the honor of the discovery of anæsthesia to the late Dr. Horace Wells, of Hartford. The statement as to what took place at my exhibition, given in Hartford on the 10th of December, 1844, is correct, though as to what followed is not quite so accurate. The writer says: "'I have a tooth,' said Dr. Wells, 'little decayed, sufficient to be filled, and *it shall be pulled!* We will prepare the gas. I will take it, and *you shall pull the tooth to-morrow!*' said he to Dr. Riggs, who assented to this proposition, and said, 'It is fair to begin on ourselves;' and on that the surgeons separated for the night, with fixed determination and high hopes.

"In the morning, December 11, 1844, the gas was prepared. At half past ten o'clock A. M. Dr. Wells took the dentist's chair in his own office, at the corner of Main and Asylum streets—the office now occupied by Dr. Taft. * * But Dr. Wells took the pipe of the gas-bag in his mouth, and it was kept there till his hands fell lifeless, and his head drooped. Then in an instant Dr. Riggs fastened his forceps to the left upper molar and drew it out. Dr. Wells did not move a muscle. Holding the tooth up to the spectators, Dr. Riggs said, 'You see!' In a moment Dr. Wells opened his eyes, blew the blood from his mouth, and asked, 'Is that my tooth?' 'It is,' said Dr. Riggs."

The author of the above must have drawn upon his imagination for some of these details. He conveys the impression—without saying it in so many words—that my agency in this matter ended with the exhibition in the hall, and that either Dr. Wells or Dr. Riggs made and administered the gas for this first operation under an anæsthetic. The facts are as follows: At the close of the exhibition Dr. Wells came to me and stated that Colonel Cooley felt no pain while the effects of the gas lasted, and asked why a tooth could not be extracted without pain, &c. I replied that I did not know, as the thought had never occurred to me. I then related the fact that at my exhibition in Bridgeport, a short time previous, a young man broke his finger in striking another while under the influence of the gas, but said he felt no pain till the effects of the gas had passed off. Dr. Wells *then and there* decided to try the experiment on himself, in having a tooth extracted, and asked me if I would administer the gas to him for the purpose. I did so the next day, forenoon. Dr. Wells was delighted with the success of the experiment, *and asked me to instruct him how to make the gas, which I did.*

I claim no special honor in all this, but what little is due me should not be given to another. Dr. Wells immediately introduced the use of the gas into his dental practice, with entire success, and continued it for a year, or till December, 1845, when he went to Europe for the benefit of his health. Dr. Wells died on the 24th of January, 1848, and before the dental or surgical profession had recognized the value and efficiency of the gas as an anæsthetic. I think that Dr. Riggs never made the gas at this time, and only used it in connection with Wells—else why should he abandon it for fifteen years, or till I revived it in May, 1863?

After the death of Wells, the general verdict was that the gas had been tried by him and proved a failure. Not being a dentist or surgeon myself, I had no use for the gas, though I often referred to the experiments of Wells, and claimed that the gas *was* an anæsthetic, and Wells was the author of the discovery of anæsthesia. But these claims were never generally admitted till after I had revived the gas and demonstrated its value. It lay dead for fifteen years. The credit of this revival and practical demonstration I claim, and I feel confident that the profession will award it to me.

The proposal which you advocate, to erect a monument to the memory of Dr. Wells, meets my hearty approval, and I shall be glad to unite with all those who have been benefited by his great discovery in contributing to that object.

Yours truly, G. Q. COLTON.

NEW YORK, November 13, 1871.

HOW TO SPELL AND PRONOUNCE ALUMINIUM.

BY W. E. DRISCOLL.

An incorrect spelling or pronunciation of words in common use is not calculated to establish a reputation for good scholarship. All have noticed, no doubt, that for a few years past almost every writer in the dental papers has spelled aluminium without the second "i." Now, if this was only a matter of mere taste or sound, or of easy pronunciation, it might be very well. But there is another consideration, of more importance than either of the above. It probably is not generally known that there is a general agreement among scientific societies in Europe to spell all names of metals that are found in the metallic state with "um," (if the word can be so terminated) omitting the "i" before it; and those metals that are not found in the metallic form, but depend upon chemical art to bring them to this state, are spelled with the "i" before the "um" as the last syllable, thus affording easy means of distinguishing, both by the spelling and the pronunciation, whether a metal is "chemical" or not.

This, certainly, constitutes sufficient reason for continuing the two forms of spelling; and as they may be continued, should there not be some intelligible rule for their use? And if so, what better one than the one here insisted upon?

* * *

ARE WE PROGRESSING?

BY W. E. DRISCOLL.

While reading the report of the proceedings of the Kansas State Dental Society, at its meeting of September, 1871, we were most forcibly impressed by comparing their discussions with those of societies that have been over the same ground several years ago, and are now investigating questions it would seem our Kansas brethren have not as yet heard of.

We would not be understood as desiring to cast any discredit upon them because of not having our advantages, but desire to use the circumstance as an illustration—and it is a most forcible and palpable one—of what a few years of associated effort will do toward improvement in modes of practice. Let some who are disposed to discourage further exertion in this direction compare this report with one of the Lake Erie Dental Association, published in the same number of the DENTAL REGISTER, (November, 1871,) and then affirm, if he can, that the spirit of investigation and improvement that pervades the *better part* of the profession is without tangible—yea, the grandest results.

In support of our view, we might compare numerous passages from each of these reports, but shall refrain, so that every one may do so for himself; and then, if he does not feel that "it (dental knowledge) does move," we can assure him he may very properly indulge in "a little retracing of steps"—just enough to take him out of a profession he can not appreciate.

BEDFORD, IND., December 1, 1871.

Proceedings of Societies.

SECOND ANNUAL MEETING OF THE NEW JERSEY STATE DENTAL SOCIETY.

The second annual meeting of the Society was called to order by the President.

After the reading of the minutes, and a favorable report of the Executive Committee, seventeen names were added to the roll of the Society. Dr. Stockton then addressed the meeting.

He commenced by giving an epitome of the history of dentistry from the time of the Pharaohs to the present hour, and congratulated his hearers upon the progress and present status of dentistry as a profession. He spoke upon what he conceived to be the important elements of successful practice. It was the fashion with a certain class of minds to belittle success, but the more judicious in this age hold to the opinion that men who make their way to the front and maintain a high position in any legitimate pursuit in life must have merit. To prostrate one's self before the shrine of riches and power might be called "flunkeyism," but reverential respect for success in any honorable pursuit is worthy of worship. Occasionally pretenders meet with success, and people speak of luck; but true success comes not by chance, for men apparently adapt the same means to the same end; one fails, the other succeeds, and we say the latter is the more fortunate. But in reality their means were different. It is not by doing the right thing, but by doing it in the right way, at the right time, that we achieve the greatest triumphs in life. Again, we must measure a man's success, not by the relation which his achievements bear to those of others, but by what he has himself accomplished. If he has attained the object he had in view—provided it be worthy an honorable ambition—he is a successful man.

Concentration of thought and effort upon one's specific pursuit is an important element of success. Self reliance is a valuable quality, but the aid of professional brethren is by no means to be condemned. The demand now is for associated effort. No practitioner could make his mark who ignored it. We can often learn more at the dinner table, from an associate, than in our own laboratory studying a difficult case. Successful men have not confined themselves to direct action, or looked only to immediate results. Not a few failures result from a lack of faith in and fellowship with professional brethren. The longer we live, the more we will be convinced that social intercourse is a material means to success. Through its instrumentality valuable information is imparted and received, improvements in mechanical appliances, aids, &c., suggested, and experiences in difficult operations communicated. Frequently the gain is palpable at once, and we count the advantage as we take off our dress coat; if not, it will make itself manifest sooner or later.

Keeping up with the profession involves hard labor, but we should not be content with that. All acting upon that principle, our profession would soon come to a stand. Contentment with what is already known would of necessity end all progression. We are to be imparters as well as receivers—to endeavor always to add something to the department of knowledge to which our calling relates. Attainment to a full knowledge of the science and principles of his profession, as far as practiced, is far from a despicable object of ambition; but to enlarge its usefulness and augment its achievements is certainly more worthy of one's aspirations.

Over-sensitiveness oftentimes interferes with a man's success. We must not be over-sensitive to attacks upon our pride. Every successful man has had much to mortify him in the career; he has borne many rebuffs, sustained many failures. Nor should we be discouraged over our mistakes and failures. Scarcely a practitioner among us but will admit he was (in a measure) made by his failures, and that what he once thought his hard fate was in reality his good fortune. Error, properly improved, becomes the stepping stone to the highest success. Many a promising practitioner has been permanently injured by early success. But it will not profit us, or our reputation, or the profession, to publish our mistakes. Be it understood that by over-sensitiveness is not meant over-scrupulousness. Be very scrupulous. Never get up any pretentious humbug; never seek to undervalue the work of another; never advertise cheaper or better work than your brother to draw away patients.

In estimating the sources of success, account must be taken of our habits and temperaments. Men otherwise well qualified have failed to make a name in the profession from neglect of attention to these important particulars. Most of us are sensible, at intervals, of feebleness and weariness, when we are seemingly incapable of any exertion; and we hesitate at such times, to know what to do—whether it were better to make the will assert itself, and go on in spite of weakness and lassitude and continued entreaties from the frail flesh, or let nature have her own way and succumb at once. Again, there is fear of doing what we have in hand badly, perhaps of having it all to do over, or of making on the minds of those we wish to influence favorably an impression of weakness. On the other hand, there is danger of making compromises with our active powers and yielding to the temptations of indolence. We are in danger of mistaking idleness for debility.

It is a difficult thing to lay down specific rules. Each practitioner should study his own temperament. If we know we are not indolent—if we have for the most part pleasure in the practice of our profession, and never need the spur—we may safely pause when our energies are flagging.

The speaker then alluded briefly to the question of manner as involving an important element of success, though it was impossible to lay down specific rules upon the subject. He spoke in favor of liberality in extending the benefits of improvements and discoveries from one member of the profession to another, deprecating anxiety for patent rights, and pleaded for encouragement and aid to unfortunate struggling practitioners. He closed by referring to the principles of Divine revelation as those upon which all true success is founded.

Drs. Maynard, of Elizabeth, Fitch, of New York, and Armes, were elected honorary members.

The election of officers resulted as follows:

President—A. W. Kingsley, of Elizabeth.

Vice President—G. F. J. Colburn, of Newark.

Treasurer—Lewis Reading, of Trenton.

Secretary—E. F. Hanks, of Rahway.

Executive Committee—William Dibble, Elizabeth; Thos. Stephens, Trenton; J. C. Robbins, Jersey City; C. S. Stockton, Mt. Holly; Leo H DeLange, Bordentown.

It was resolved that a committee of three be appointed to take into consideration the regulation of the practice of dentistry in the State of New Jersey, and, if practicable, have a law passed that no one hereafter shall be allowed to commence the practice of dentistry unless they shall have passed a satisfactory examination before a board appointed in accordance with the act, graduates of dental colleges excepted.

Drs. Stockton, Reading and Colburn were appointed on that committee.

After due consideration, Long Branch was selected as the next place of meeting.

Dr. G. F. J. Colburn, of Newark, was selected to deliver the next annual address.

Some discussion then ensued on "Mechanical Dentistry."

Dr. Kingsley condemned Weston's metal in toto.

Straight's flexible edge met with no better success at the hands of Dr. Chew.

Dr. J. C. Robbins objected very strongly to the odor of the celluloid base.

Dr. Hayhurs thought the camphor in the plate would be liable to become dissolved in the mouth.

SECOND DAY.

Drs. DeLange and Hanks gave a clinic filling teeth with gold, both using the rubber dam. Dr. DeLange demonstrated his method of capping the nerve, using oxychloride of zinc, finishing the rather difficult operation of filling the posterior proximal surface of an upper molar tooth without previous separation or preparation very creditably. Dr. Hanks inserted a simple crown filling in a lower molar.

Dr. Colburn does not use the rubber dam, because he gets along perfectly well without it.

Dr. Stevens thinks it a valuable discovery; had used it since last Society meeting with gratifying results.

Dr. Hanks cured a case of alveolar abscess that pointed on the chin by injecting the aromatic tincture of sulphuric acid; was indebted to Dr. Atkinson for the mode of treatment.

Dr. Kingsley gave a case in practice. Necrosis followed abscess; dissected the gum and took away the sockets almost entirely on one side of the maxillary.

Dr. Colburn described Bacon's method of entrapping dentists who use the rubber without license.

On motion, it was resolved that the New Jersey State Dental Society strongly protest against and denounce the practice of advertising cheap dentistry now in vogue by those claiming to be dentists.

The Society then adjourned.

FIRST DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK.

This Society met October 3d, 1871.

Dr. Atkinson read the following paper on "Smooth Points:"

SMOOTH POINTS.

However grandiloquently novices, freshmen, and sophomores may plume themselves upon their ability to understand, take sides, and defend by proof the aspect of all questions that arise in nature, including the whole range of physics, psychics, and the processes thereto belonging, still there is, outside of the realm of numbers, a persistent remainder of unproved correlation of the elements of propositions, in excess or deficiency, that prevents full satisfaction to the mind of him who desires to *know*.

Those who attempt to formulate the mutations of force and form in nutrient or mechanical function in mathematical figures without loss or remainder, may look for disappointment in the effort. The laws of progress have indelibly written *change* on all bodies and processes in Nature, whether they consist in separate or conjoined domains of science and philosophy, of principles and practice, pertaining to the evolutions of the physical, mental, moral, or spiritual unfoldment of pre-ordained plan and process, in general and in particular, in persons and professions.

The concepts of principle and the performance of process, at each stage of evolution of plan, purpose, and destiny, are necessarily limited to their natural range, and it is impossible to separate or ignore the serial order, without arresting or destroying the career of progress.

Professions, like individuals, have an origin, growth, culmination, and end. The aspects through which every body or process passes in its career are regular in succession of stage of degree and development of the plan or type, without which they cannot exist as body or process.

The different periods of dentistry are calculable from the character of operations and the instruments used. The performances for the preservation of decayed teeth now executed, in the hands of the best operators was an impossibility, but a short time since, in any hands. "Smooth Points" is very indefinite and evasive, as an adequate description of the instruments used to insert gold in cavities in teeth. Almost all the phrases employed to describe instruments and processes and methods of use are liable to fail to convey the concept of the speaker or writer; so that efficient teaching involves the presence of the thing described, whether that be an implement or a performance. Hence didactic teaching should be superseded by the exhibition of means and methods in actual service, in demonstrating their value and power in open clinic to all.

As all advice is for those ready to adopt it, the question of the advisability of advising is one of the degree of the evolution of the states of those to whom the advice is proffered; hence those only who are not complete in conception and execution of the work of filling teeth with gold may hold themselves as legitimately addressed upon this complex unity or unitary complexity.

Many who are not satisfied with their attainments are, nevertheless, very "conservative," as they say, and make objections to leaving the old unsatisfactory methods, for the sake of "consistency" and "reliability," in not transcending the limits of their former unsatisfactory performances.

What is it that is conserved in such cases other than error and failure to accomplish the good already conceived? The dental profession, like all other offshoots of the necessities of mankind, began at its lowest estate, and can only rise to its highest by untiring effort.

Those who tarry in what may be called the barely *physical* stage of professional development, will persistently call it a mere "finger craft," while those who rise to the *mental* stage will perceive the necessity of understanding the principles that underlie the mere how to do it. And these will enable us to recognize the *moral* stage of professional development, which will naturally lead us into the domain of the spiritual and æsthetic stage of professional evolution.

Thus the truly æsthetic stage includes all the preceding, and involves not only the how, but the why and when of all the performances included in the understanding, preparation, and execution of the redemptive work. Blessed is he whom the *truth* doth not offend. If plain expression of truth convicts us of deficiencies, and we are not willing to learn to overcome them, our stage of growth is low, and our works in accordance with the degradation of standard adopted.

Filling teeth with "smooth"-ended instruments was practiced in earliest dawn of the art, and had any one using them emerged out of the physical stage, there would have been opened a way to mental, moral, and æsthetic stages long since.

Let us not find fault and kick against progress, but humbly acknowledge the right and use of each stage, and thus accelerate the impetus that shall bring us all to use smooth points and heavy gold, and do perfect work.

Dr. J. S. Latimer asked, why not start a filling with serrated points and finish with smooth ones?

Dr. Atkinson replied there was no necessity, as a filling could be started by using four or five ply of 60 to 120 gold, holding it in place until anchored, and then finishing throughout with smooth points. The idea of using gold so heavy first came to him by melting a pellet into the form of wire while annealing it. He put it in the center of the filling, and found that it went down easily under the instrument.

In the old way we didn't make solid fillings—there were many crevices—the gold was *interdigitated*, not welded. Welding is the annihilation of space. Flux is used only to make a clean surface, and it is a mistake to suppose that heat is necessary at the moment of welding. Didn't care to have the center of fillings solid.

If the patient and operator didn't harmonize the patient ought to be dismissed till another time; or if there was permanent mental and spiritual clashing, given into the hands of another man. One should never operate unless sure of a good result, and unless the patient and operator work together that could not be attained. If men would learn to do difficult work they must see it done. Believed there were more doing good work now than ever before. Had prayed that he might be the *best* dentist on the planet. Didn't care if he was criticised; for he said these things for the reason that he had seen the time when he would have licked any one's boots to have been told the same. He had now transcended what were then his best ideals.

Dr. Fitch said he had no doubt every honest dentist, coupled with intelligence, had made the same prayer during his whole life. His first idea in reference to smooth points and heavy gold came from heating pellets in the lamp and having them fall from the pliers upon pieces of gold, to which they adhered. If they would do this, why use serrations? and this led him to experiment in that way. Had better success with heavy than with light gold. Get better margins with smooth points. Didn't use burnished points, but those flat on the surface and filed nearly smooth. Had found that he could not pack gold in some mouths without the rubber dam, but did not always use it, nor did he always use the mallet.

Dr. Taft, being present, said smooth points were just coming in vogue; was not aware that any article, except one, had been written claiming their superiority. Only a few men here and there believed that gold could be welded with them. He had been surprised during the past year at the manner in which he had found gold would weld under smooth instruments. He had been convinced on this subject. Experiment demonstrates it.

Had often been obliged to change opinions, and might have to do so again. Was ready to do so when facts require it. Preferred smooth points to serrations, chiefly because of their thorough condensation of the gold about the margins of the cavity. Gold laid against the borders of cavities, or against the enamel, is often perforated by serrated points, and there is danger of injury thereby. In such cases the microscope will show broken or marred borders that ultimately disintegrate. Considered this often the cause of the discoloration that eventually appears about some fillings. This can be obviated by the use of smooth points His ordinary method was to fill the body of the cavity with No. 20 to 30, but when near the margins uses No. 60, letting it overlap, and forging up against the border with smooth instruments. Also adopts this method in building on or overlapping the edge of cavities that have been cut or filed, in such a way as to protect the cut surface. Uses in this way from eight to ten ply of No. 60.

Gold could be built up with smooth points; had tried it, and had succeeded beyond his expectations Found it hard to tear gold away from a smooth surface, so perfectly could it be welded. It would tear in two before it would come off.

He would take exception to one point in the paper just read; that is the prominence given to clinical teaching over didactic. A few men naturally learn all they know through their eyes, but he thought it better to learn through the intellect as well. But few could learn to do difficult work by simply seeing it done. Operations in the mouth were not repetitions of the same thing. There were fixed principles underlying them, and these principles must be learned first. The mind first conceives and then the hand works out the conception, and until the directing power is properly educated and balanced the hand is powerless. There are some who can best learn by demonstration, but to be able to meet *all* conditions, principles must be first learned.

Dr. Latimer asked if he understood Dr. Taft to say he let the gold overlap the edge of all cavities.

Dr. Taft—Yes, so far as the teeth have been cut. Considered that it should be a principle in filling to always restore the original shape of the tooth. Some circumstances forbid this, but should do so where it could be done. Would not transcend it unless in exceptional cases. Would not let the gold overlap the enamel in crown-surface cavities, unless where it was necessary to secure a better occlusion. Would simply say that he would protect every exposed portion, and this would be done by restoring the original shape of the tooth. And this can better be done since the advent of heavy gold.

In reply to a question, said he used Guillois' cement in the bottom of large cavities, if the teeth were frail or the patient unsuited to a lengthy, tiresome operation, cutting away portions of the cement and filling the remainder of the cavity with gold. Would endeavor to use discretion, putting the cement in teeth not much used, while for a strong man, whose teeth close with much force, would use more gold.

Dr. Thomas, of Madrid, Spain, said what he had heard came to him as a new light. It was food for a starving soul. It made him feel that he was a long way behind the times. Had found, in Spain, that chalky decay predominates. Thought the pulps of teeth larger in tropical countries. Had found them easily, and often exposed. Said the water of Madrid was hard, and considered that there were more teeth lost from salivary calculus than by decay.

Dr. Latimer, in reference to the prayers of Drs. Atkinson and Fitch, said that he had prayed that he might be a *good* dentist, but he had never prayed that he might be the best. If each of us should pray to the Good Father that we might be the *best*, what could we expect He would do about it? Said he had rather pray that he might serve his patients well and faithfully.

Dr. Francis thought dentists the greatest set of innovators on earth. They were always after something new, and when anything new was announced there was always some one ready to claim a previous discovery of it. Formerly soft foil was used, then adhesive, and now some are advocating soft foil again. We had thin gold and now thick, and some have become sick of it and have gone back to thin. And the same changes have occurred in the kinds of points used. Was a conservative, and believed truth would be found between the two extremes. Formerly he used such serrations as were found at the depots, but now uses much finer ones. Prefers them as fine as could be made. Was not in favor of heavy foil. Wanted a foil that could be perfectly adapted to the walls of the cavity. Spoke of a tin filling that had remained perfect for sixty years. How often had we all seen tin fillings that had remained twenty or thirty years? Believed the reason to be the perfect adaptation attained by the use of this metal. Didn't believe thick gold could be perfectly adapted to the walls. As he had said before, if he was required to fill an egg shell with paper he should use tissue, not pasteboard. Didn't believe as much adhesive gold was used now as formerly. Uses soft foil against the walls and adhesive in the center. Had seen fillings, from the hands of our best operators, where the gold came out solid, like a bullet, and believed it due to adhesive gold. Said it had been proven that the heavier the gold the less could be packed into a cavity drilled in a steel plate.

Dr. Fitch said we should look at this matter in a practical way. The general way to preserve a tooth from decay was to exclude moisture, and his aim was to pack gold in such a way as to attain that end. Thought any one who could not use adhesive gold against the walls in that way ought not to use it. He didn't care for the demonstration if he didn't understand the principle.

Dr. Taft said a knowledge of conditions—a knowledge of the management of conditions, physiological and pathological—was necessary in the treatment of diseases of the mouth. All failures were *not* due to heavy gold. We must take into account the susceptibility of teeth to decay, the lack of care on the part of the patient—in fact, many things that conspire to make even the most careful operations failures. Our manipulative ability is far in advance of our knowledge of principles. It is not safe to do for one what it may be well to do for another. We must learn to recognize these differences of conditions.

S. G. PERRY, *Sec'y.*

PROCEEDINGS OF THE BROOKLYN DENTAL SOCIETY.

The Brooklyn Dental Society held its regular annual meeting, at the office of Dr. G. A. Mills, on Monday evening, October 2d, and the following gentlemen were elected as officers for the ensuing year:

President—Dr. A. H. Brockway.
Vice President—Dr. Wm. Jarvis, Jr.
Recording Secretary—Dr. John C. Wyman.
Corresponding Secretary—Dr. C. A. Marvin.
Treasurer—Dr. J. C. Monroe.
Librarian—Dr. O. W. Hill.

The attendance was large, and an excellent interest sustained through the whole session.

After the election, the retiring President, Dr. G. A. Mills, made a happy address, which was followed by an appropriate and neatly worded speech from the President elect.

Prof. Taft, of Cincinnati, also honored the society by his presence, and being invited to speak, he made a telling speech in favor of increased earnestness on the part of each, in seeking to advance the standard of professional education, and thoroughness in every department of our beloved profession.

As usual, a collation was given at the close of business, and thus was ended one of the most pleasant yearly gatherings of this society.

JOHN C. WYMAN, *Reporter.*

EAST TENNESSEE DENTAL ASSOCIATION.

The fifth annual meeting of the East Tennessee Dental Association, convened at Knoxville, Tennessee, on Wednesday, September 20th, the President, Dr. Cozier, in the chair.

Several new members were added, and a growing interest was manifested among the members and profession generally.

Dr. Wm. T. Fowler, read an essay on "Mastication and Digestion," which was freely and profitably discussed, as was also one by Dr. Myers, on "Dental Education," and by Dr. Cozier, on "Caries."

Other questions were also discussed, viz.: "Proper Methods of Cleansing Teeth," Treating Exposed Pulp," Filing, Wedging, etc, also Mechanical Dentistry. A clinic was held daily, in which several of the members operated.

Drs. J. Fouche, A. J. Dunn and A. P. White, were appointed a committee to present to the next legislature, a bill prepared by Dr. Cozier, to regulate the practice of dentistry in Tennessee.

The following resolution, presented by Dr. Fouche, was received by the convention:

Resolved, That it is the desire of this convention, that two dental chairs be established in connection with the Nashville Medical College, one on operative and one on mechanical dentistry.

Resolved, That in our opinion, Dr. Morgan, of Nashville, is the most suitable person to fill the chair of operative dentistry—that we will use our best efforts to procure a charter from the legislature for this purpose.

Drs. Fowler, Mayes and Myers, were appointed a Committee on Membership. The election of officers for the ensuing year then took place, resulting as follows:

President—Dr. W. H. Cooke, of Cleveland.

Vice President—Dr. A. J. Dunn, of Bristol.

Corresponding Secretary—Dr. N. I. Mayes, of Sweetwater.

Recording Secretary—Dr. A. P. White, of Knoxville.

A special meeting was appointed to be held at Bristol, on the third Wednesday of June next. The convention then adjourned.

During the session, the highest degree of interest was manifested, and an advancement both in theory and practice was evident. A growing interest in the conventions was also evident, and all left feeling amply rewarded for their attendance, and a seeming determination to use their utmost toward raising the profession in East Tennessee to a high standard.

N. I. MAYES, *Secretary.*

PROCEEDINGS OF THE TENNESSEE DENTAL SOCIETY.

The fifth annual meeting of the Tennessee Dental Association, was held in Nashville, commencing July 27th 1871, closing on the 29th.

During the two days meeting, peace and harmony prevailed. All present entering into the discussions reported upon by the regular Standing Committees, such as education, physiology, pathology and surgery, histology, therapeutics, operative and mechanical dentistry. Take the meeting altogether, it was one of the best we have had. I am glad to say the society has taken one step toward educating the people in regard to their teeth. At the next meeting there will be a report made upon a circular or pamphlet, the object of which will be to teach the people something of the value of their teeth, as well as the way and means of preserving them. We hope the committee will succeed in getting up something that will be very interesting and instructing to the masses. The next meeting will be held in this place, commencing on the 27th of July. The harmony and interest manifested in this, we take as a sufficient guarantee that the next will be the most interesting we have ever had, each member returned home with a promise to come back next year prepared for the occasion, as well as to do all in their power to interest other good men in the Society.

The election of officers for the ensuing year resulted as follows:

President—L. C. Chisholm.
Vice Presidents—G. C. Sandusky and J. C. Ross.
Recording Secretary—E. S. Chisholm.
Corresponding Secretary—A. Hartman.
Treasurer—S. J. Cobb.

EASTERN INDIANA DENTAL SOCIETY.

In response to a call made by W. C. Stanley, of Dublin, Ind., A. O. Rawls, of Connersville, Ind., J. K. Jameson and J. R. Clayton, Shelbyville, Ind , a meeting was held at the last named place for the purpose of organizing a Local Dental Society, for the mutual improvement and advancement of the interests of the dental profession in Eastern Indiana. Present, W. C. Stanley, A. O. Rawls, J. K. Jameson, John Porter, of Acton, Ind.; B. F. Clayton and J. R. Clayton, of Shelbyville.

On permanent organization, A. O. Rawls was elected President; W. C. Stanley, Vice President; J. K Jameson, Treasurer, and John R. Clayton, Secretary. The Society to be known as the Eastern Indiana Dental Association.

It was resolved to hold an annual and semi-annual meeting; the annual meetings to be held on the last Tuesday in October, and semi annual meetings on the first Tuesday in May of each year. The semi-annual meeting will be held at Connersville, Ind , on the first Tuesday in May, 1872, at which time and place it is to be hoped that a good attendance will be given and good interest manifested in behalf of our young Society, which has started out under very favorable auspices

Executive Committee—W. C. Stanley, Dublin; B. F. Clayton, J. R. Clayton, Shelbyville, Ind.

J. R. CLAYTON, *Sec.*

Selections.

DENTIGEROUS CYSTS.

BY W. P. BOWLES, M. D.

An Essay to which was awarded the first prize of the Boylston Medical Society for 1871.

This is not an affection which demands our time by its frequency or fatality. Yet its occurrence is sufficiently common to give its study practical interest, and, when present, it requires an intelligent interference to accomplish a cure. Coming, as this tumor does, in the most conspicuous part of the body, it not only encroaches upon the two great cavities of the face and impairs their functions, but thrusts out the lips or cheek, where concealment is impossible, to form an ugly and alarming deformity; and this, too, usually during a period when personal beauty is valued most highly. The surgeon who is familiar with this disease and can eliminate the various growths which simulate it, can promise to his patient not only life and comfort, but a restoration of comeliness. The chief interest of the disease, however, is not in the practical view just mentioned, but involves considerations which include also the structure and development of the organs affected. Dentigerous cysts owe their possibility to these elements, and are therefore peculiar to the jaws; they are extraordinary developments of cavities which, at a certain period of fœtal life, exist normally, and cover the teeth as they lie imbedded in the substance of the maxillary arches; an abnormal action of the secreting power which these cysts possess, in fact causes the disease which we are considering. The cysts are not at all related in their nature to those cavities of other bones with which, until recently, they have been confounded, nor even with certain other cystic troubles of the jaws themselves, from which even now they are scarcely separated. The development of the parts concerned must, therefore, be studied before the disease itself.

Very early in fœtal life, before the human embryo attains an inch in length, even while the nose and mouth are still a common chasm, a thickening of the membrane of the maxillary arches forms a semi-circular ridge around their corresponding margins. The epithelium covering this ridge now proliferates, and along the summit of the ridge *several* layers of cells, instead of *one*, are found which indent the underlying substance, dividing the ridge into two ("dental ridges") by a shallow groove ("dental groove"). From the bottom of this groove a narrow epithelial fold grows deeply into the tissues beneath it, and is called the "enamel germ." These changes, according to the more recent observers, appear in the deeper layers of the epithelium only, while the free surface is kept nearly in the same place by the accumulation of its cells. The enamel germ next widens at the bottom, and becomes divided into segments corresponding with the number of the temporary teeth. Each of these divisions, which are called "enamel organs," is somewhat flask-shaped and connected with the groove above by a narrow neck, the relic now of the enamel germ. A papilla, called the "dental germ," soon grows into the enamel organ from below, carrying, as it advances, the floor of the latter upon its summit; clothed with this it projects boldly into the "flask," invaginating its lower half, and there assumes the likeness of a tooth, with the enamel organ, now something of a "meniscus" in shape, resting upon its crown. The narrow isthmus reaching to the surface of the jaw then contracts and disappears. a vascular and fibrous envelop* surrounds the parts described, and is itself encompassed by the ossifying jaw. Thus the tooth is isolated from the mouth and from its fellows, and enclosed in solid bone in most close connection with an equally isolated epithelial sac.†

Those cells of the dental germ which lie immediately beneath its surface are next developed into a well-marked layer of bone-forming elements,* by means of which the dentine is produced, and soon forms a thin shell over the crown of the papilla, and increases in thickness, growing toward the centre of the tooth by successive layers of the same "odontoblasts."

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* "Dental sac." Waldeyer, however, describes this as "richer in cells and vessels," and says that it disappears early.—Stricker's Histology, vol I., p. 488 (Syd. Soc. Trans.

† The object of nature in thus enclosing the dental organs seems to be to accomplish the formation of the enamel, for in certain fishes whose development does not extend beyond the "follicular" stage of Goodsir, dentine only, and no enamel, is found upon the pulp.—Owen, Odontography p. 17.

Meanwhile, very great changes have taken place in the enamel organ. Its upper wall, but slightly altered, still consists of short and cubical cells. Its interior presents a web of stellate cells, converted from the accumulated epithelium, and widely separated in "a rich albuminous fluid." The layer enveloping the dentine would not now be recognized; its cells have become prismatic, regular and very long, their nuclei have advanced toward their superficial extremities (i. e., next the enamel pulp), their ends appear to be open. It is, however, continuous with the outer wall at its border, find the true epithelial covering of the remarkable papilla beneath it.† An intermediate layer‡ of loose and rounded cells lies between this and the stellate forms in the middle. The enamel begins on the surface of the dentine by the calcification of these prismatic cells, and increases outward (in an opposite direction from the progress of the other), either by their elongation or successive replacement by the rounded ones next to them. Thus the growing enamel encroaches upon the enamel organ and is nourished by it.§ The latter wastes as the other increases,

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* "Odontoblasts," Waldeyer. "Dentinal layers," Owen.

† Although it would be inferred from the older writers, and especially from every picture which I have seen, that the enamel membrane is not connected with the dental germ, yet it seems to me to be its own true epithelium, and that its free surface, properly speaking, is that which faces the enamel pulp; also, that this latter is the only "cavity" in the dental sac. The interspace always figured between this membrane and the dentine is probably diagrammatic. If this be so, we have here the anomalous condition of a superficial membrane cut off from supplies below (by the hardening of the underlying dentine) and nourished from its homologically free surface, that facing the enamel pulp.

‡ "stratum intermedium."

§ This is the view expressed by most authors; but Waldeyer says the office of the enamel pulp is only "transitory and mechanical;" to fill the cavity reserved for the tooth.—Stricker, op. cit. p. 485.

The "membrana præformativa," whose function, and even presence or absence, were for a time the cause of so much discussion and difference of opinion as even nearly to deprive their enamel cells of their and the tooth advances toward the gum, until, finally, the the pulpy part disappearing, its upper wall lies upon the surface of the enamel and hardens on it as the "cuticula dentis."—Stricker, op. cit. p. 485.

The cement is formed below the margin of the enamel by the ossification of the dental capsule. ("From the connective tissue of the dental alveoli."—Waldeyer.)

In the course of time the fang develops and elongates, the jaw and gum dissolve before the advancing tooth, and this at last appears in the cavity of the mouth.

From the inner side of the neck of each of the enamel organs which serve the temporary teeth, a second pouch is given off, which afterward serves the corresponding permanent tooth in a similar course of development. There always remains, however, an unossified cord extending from this capsule, either to the gum or to the socket of the temporary tooth from which it sprung; thought to be a relic of the neck of the enamel organ*—a sort of umbilicus.

The first permanent molar is formed independently from the milk set, the second from this by the budding process just described for the permanent teeth generally, and the third in like manner from the second. These in this respect resemble three generations of teeth, which, however, do not succeed each other, because the growth of the jaw at this place allows them all to coexist †

The growth and eruption of the permanent teeth are governed by the same rules as those of the temporary teeth; the process, however, is embarrassed and rendered difficult by the presence of the latter. The temporary alveoli are invaded by the new teeth; the temporary roots dissolve before them, and, at length, only a simple crown falls away and a new one has taken its place.

The jaws, therefore, during childhood, especially in its

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traditional office, is, I think, best explained by Waldeyer as the "youngest softish layer of the enamel," and not a separate membrane —Stricker, vol. i. p 487.

* "Either because it is to become useful as a 'gubernaculum,' and its bony canal as an 'iter dentis,' or more probably in virtue of the general law that parts or organs which once acted an important part, however atrophied they may afterward become, never wholly disappear, while they do not interfere with other parts or functions."—Goodsir, Edin. Med Jour., 1838, p 28.

† But where they are unable to do so, the posterior may cause absorption and loosening of the anterior, as if it were merely its temporary predecessor.

early part, are full of these remarkable organs in active process of growth, and crowded together in such apparent confusion that the wonder is that accidents to their development do not oftener occur—that the teeth are as regular as they are.

The literature of dentigerous cysts is meagre and unsatisfactory. Many of the older writers have failed to mention them at all, while the rest have hopelessly mixed their cases in a confused mass of ‘ spina ventosa ” and “ osteo-sarcoma.” Dupuytren mentions one undoubted case,[*] and several others which may have been such, but no reference is made to teeth in connection with them, except that one “ was caused by the incomplete extraction of a canine.”—P. 136. His directions for treatment, however, are excellent; better, in fact, than those of some more recent authors, many of whom have added nothing to his account.

Stanley quotes two cases,[†] besides others similar to those of Dupuytren; he follows him in pathology and treatment, but recognizes more fully than he the distinction between cysts in the jaws and the various fluid cavities of other bones, yet fails to see the difference between the true dentigerous cyst and the one “ caused by the irritation of a carious or misplaced tooth, and commencing near the extremity of the fang.”—P. 300.

Warren gives some interesting cases (none, however, proved to be dentigerous), which he treated admirably and successfully, part of which he considered to be due to trouble at the roots of certain teeth.[‡] March relates cases similar to Warren's.[§] Jourdain (as quoted by Salter)[‖] had three genuine cases. Other observers have each reported an instance, as may be seen in the Appendix. Salter, in Holmes' Surgery,[¶] has given the best account of the disease which the writer has seen, and has collected quite a number of cases for illustration, besides giving two from his own practice. More recently, Heath,[**] in his work on the Jaws, devotes several pages to it, and gives three or four excellent drawings of specimens, but adds nothing new in theory or treatment.

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[*] That of M. Loir. “Leçons Orale de Clinique Chirurgicale,” Paris 1849, t. ii. p. 135. Also Appendix, No. 22.

[†] Diseases of the Bones. Also Appendix, Nos. 9 and 10.

[‡] Surgical Observations.

[§] New York Medical Soc. Trans., 1856, pp. 163 and 164.

[‖] Holmes' Surgery, vol. iv.

[¶] Ibid.

[**] Heath on Injuries and Diseases of the Jaws.

The accounts in the common text-books are only compilations, and all inferior to those of the authors named. Glaswald is said to have written a very fine thesis upon it. It is not a little surprising so many errors should have occurred in the well written article* of Salter, in which he describes two additional cases.

Clinical History.†—This is, perhaps, the most neglected part in the recorded cases; many entirely fail to give the history of the case. Where it is given, it seems to be simple and easily told; a slow, nearly painless swelling of a portion of the jaw appears and increases, and a certain irregularity (to be referred to again) is noticed in dentition. What distress there is—usually slight, often none—is due to the tension and mechanical inconvenience of the new growth. In most cases this is all. The growth may be uniform and steady, or its progress may be retarded and again make fresh advances. It never diminishes. It may open in the mouth or through the cheek, causing either a permanent fistula, or it may close and open alternately. The wall of the antrum is usually compressed, rather than broken through; but this accident undoubtedly happens, and it often is impossible at the time of operation to say whether the cavity opened is the antrum or separate from it. Inflammation and suppuration often occur, but are not peculiar to dentigerous cysts. Such cases are apt to be painful. The size of the cavity varies, from that of an orange down.

The liability to cancerous degeneration is not so much feared now as formerly,‡ but that a fibrous growth occasionally follows has been observed in certain cases of cysts; it is doubtful, however, if such cases were actually dentigerous cysts.§

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* Guy's Hosp. Rep., 3d Ser., vol. xv, 1870.

† While the opinions of authors have been freely used in the following paragraph, more weight has been given to the teachings of the cases themselves. On this account some of the following statements will be found different from the usual accounts, but a reference to the table will sustain them

‡ "Le marche des kystes ossieux est generalement lente. Au bout d'un temps plus ou moins long ils passent a le degenerescence cancereuse, surtout ceux dont les produits sont fibro-celluleux.—Dupuytren, Leçons, etc., t. ii. p. 140.

§ The prognosis, says Mr. Syme, is more favorable if a tooth be found in the cyst; it is then almost certain that it will contract and heal.

Case No. 29, which occurred at the Boston City Hospital, in Dr. Thorndike's service, while the writer was his assistant, may be read as a typical example of the simple form of the disease. This, with Nos. 27 and 28, which occurred in his private practice, and No. 26, from that of Dr. Cheever, have not been published before, and are now presented with the permission of these gentlemen.

There are certain cases accompanied by a considerable amount of pain, either from the very first, or coming on after a little, and lasting until interfered with. These either arise from a blow or injury, in cases where the errant tooth is pushing away obstructions to its progress, or such as are accompanied by some less usual complication.

The diagnosis requires, first, the recognition of a hollow growth; and, secondly, the knowledge that it contains a tooth. The first is accomplished by physical examination, and would seem easy enough; yet a large proportion of the cases of removal of the bones for this disease were done through a mistake on this very point. The history of the case is not essential to this examination; yet an account of much pain, or cancerous tendency, would, of course, receive attention. An irregularity of its surface, polypi of the nose or pharynx, or a fungous appearance, are indicative of a solid tumor. A painless swelling of either jaw, of not very rapid growth, should always suggest the possibility of a cyst, and lead to a careful examination of every part of its surface, both over *the cheek and within the mouth.** Fluctuation will usually be detected in certain places at least, although the greater portion may be bony and unyielding.† If these thinner spots be indented, perhaps they will return to their places with a crumpling sound, which is pathognomonic of a cystic growth; if any doubt remain, an ex-

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This may occur in other cases, but it has been noticed that cysts, after being opened, are not unfrequently followed by the formation of a solid tumor. I could mention to you cases where I have opened cysts containing nothing but serum, in the place of which solid tumors have afterward been formed.—Lancet, March 10, 1855, p. 253.

* "They are generally at some parts as hard and unyielding as the bone, so that if the explanation be limited to these the mass will be supposed to be solid."—Lyme, op. cit, p. 253.

† Judging from the *non-ossification of the old "gubernaculum"* and the cases which I have seen, I shall venture to say that that portion of the wall under the gum where the *missing tooth should normally have appeared* will always be found *membranous or else very thin.*

ploratory puncture, which is perfectly harmless, should always be made, as Dupuytren has well insisted: "Je regarde une crepitation legere comme un symptome pathognomonique; ce signe merite beaucoup d'attention. S'il y a quelque doute on fait un ponction exploratrice; cette ponction et la crepitation, sont deux symptomes qui ne laissent aucun doute sur l'existence des kystes de cette nature."

The elimination of fluid accumulations in the antrum, old alveolar abscess or cysts containing blood, serum, or other matter, but not teeth, is more difficult. A decision from the above evidence alone would be impossible. There is one diagnostic mark, however, for these cases, which is of the highest value when it can be proved: this is *the absence of a permanent tooth* (which has never been removed) *some time after its appearance is due, in the neighborhood of the cyst, and whose place is quite likely to be filled by its temporary predecessor.* This condition in the mouth, in connection with the swelling, would be an almost positive indication of its nature; while, on the other hand, if all the teeth are present and normal, it is one of the other diseases.*

The predisposing and the exciting causes of this affection should be separately studied. The presence of a tooth in the jaw which has never erupted is, in fact, the only one cause of the disease, since youth and other conditions which have been considered as such are only accidental. The teeth concerned are of the permanent set† and usually delayed in the jaw, either in consequence of the irregular or non development of their fangs, their deep situation, or wrong direction, or else of the obstinate persistence of the temporary teeth in advance of them.

The exciting causes are often unknown, and probably various. The attempts of the impacted teeth to reach the surface have an exciting action in certain cases; but on the other hand, such teeth may lie quiet in the jaw during the entire life, and cause no trouble, or may be found enclosed in a cyst after all attempts at growth had been given up for years. That the disease should follow the extraction or aching of carious teeth, is not remarkable, considering how common these are at all ages; yet such irritation in some cases may have been the exciting cause as well as the obstinate resistance of a milk tooth to the advance of its follower. In the first and second cases given in the tables the disease was evidently excited by the blows which preceded. The additional presence of undeveloped teeth in the jaw is, of course, essential in all these cases, for without these the affection *can not exist.—Medical and Surgical Journal.*

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* Rare exceptions may occur to both these statements. Teeth may be indefinitely impacted or undeveloped, and yet produce no disturbance or may be absent altogether—the missing member never having had an existence—or they may be the innocent participants of an independent growth, as where they become involved in solid tumors. A supernumerary and a temporary tooth have each been found at fault.—(Appendix, Nos. 16 and 20.

† One exception, No. 16.

(To be continued.)

DISEASE OF THE ANTRUM.

BY C. S. CHITTENDEN, D.D.S.

On the 30th of August, 1870, a stout, sturdy Englishman called on me to have the roots of the left superior second bicuspid extracted. The face was most fearfully swollen, the swelling commencing about the orbital edge of the malar bone and extending downward to a point a little below the alæ of the nose, and puffing out in the centre, much as if the half of an egg, cut longitudinally, had been placed under the skin. The surface was very hard and intensely red, the appearance being unlike anything I had ever seen before. I made a good many inquiries, from which I gathered that the swelling first commenced about seven years before, and had given more or less trouble ever since, but had never been as painful or as badly swollen as when he came to me. I also learned that on three or four occasions he had consulted physicians, who had opened the enlargement in the cheek, from which, so far as he knew, there had been no discharge but blood.

The gums were perfectly healthy, there being no inflammation about the roots of the bicuspid even. Suspecting disease of the antrum, I plied him with the usual questions, but failed to elicit anything from him that would lead me to decide positively as to whether the cavity were affected or not, and as I could see no other cause for the trouble, I decided to make an opening into it. For this purpose I extracted the roots, which were removed without difficulty, and then attempted to pass a small drill through the socket of the palatal root, but, as it caused him a good deal of pain, I desisted for a moment, and then inserted the drill into the socket of the buccal root and gave it two or three turns, when I found it had passed entirely through the bone. I withdrew the drill, expecting to see it followed by a discharge from the swelling; but, as nothing came away, I took up a small probe and passed it through the opening made by the drill, and pressed it up till he asked me to stop, when I found, on measuring, that it had passed up an inch and a half from the edge of the gums. Still there was no discharge. I then took a fine excavator, the shaft of which was bent at an angle of forty-five degrees, and passed that up nearly as far as I had the probe, and rotated it sufficiently to break up any saccular formations within its reach, when fully half a teacupful of very offensive matter was discharged. When all had passed out that would do so, I injected tepid water into the cavity several times till it seemed pretty well cleansed, when I threw in a mixture of iodine and carbolic acid, and placed a tent, saturated in the same mixture, into the opening, and requested him to call the next day.

August 31st.—Patient called, according to appointment. Found the cheek distended nearly as badly as at first. On removing the tent, nearly as much matter was discharged as on the day before.

I filled the cavity with the same mixture, placed another tent in the opening, and requested him to call the next day, which he did. I continued to treat in the same manner for some time, with very little improvement. On probing the cavity carefully, I found that the external wall of the antrum was almost entirely eaten away, so that he could, by sucking, draw the cheek into it, leaving quite a depression on the outside.

On the 8th of September I resolved to try nitric acid, very much diluted. as an injection. Accordingly, I put three or four drops of the acid into a tumbler of water, which diluted it so much that there was only a slight sour taste to it, and injected a syringeful into the cavity every day for a week. From that time he improved rapidly, and in two weeks I discharged him, cured. The opening into the nose was evidently closed, and he positively refused to allow one to be made there. So I could only do the next best thing—form an artificial one into the mouth—which I did.—*Canada Journal of Dental Surgery.*

Editorial.

THE OHIO STATE DENTAL SOCIETY.

The sixth annual meeting of this Society has just been held. There was a large attendance of both members and visitors. The sessions continued during three days and two evenings, and throughout the whole a very great interest was maintained. The discussion of the various topics presented gave evidence of progressive thought and research in every direction from which tribute may be derived for the advancement of our profession. There was a disposition to change somewhat from the almost universal routine of proceeding—so far, at least, that certain foundation principles of the profession, as such, were taken up and very fully discussed; and among these was the subject of the elevation of the profession in our State. As a result of this, the Society selected and appointed three persons, who were presumed to be well qualified for the work, to serve the profession in the State for the ensuing year as Normal-class or Clinical teachers, whose duty it will be to go wherever called, by a sufficient number of the profession in any locality, and give clinical demonstrations in dental practice. From such a work, if fully carried out and well conducted, great good will result. The profession in several places are already making arrangements to avail themselves of the advantages afforded by this arrangement.

To give variety and add a new feature to the proceedings, a general quiz of one hour was held twice each day, thus drawing out from each and every member valuable thoughts, ideas and suggestions upon points of practice and principles, and in this way making every one take part, and contribute something. There were but few papers read, but this deficiency was not marked, from the fact that a great interest was maintained throughout the meeting. The papers read, however, were excellent.

There are two directions in which this Society is putting forth a strong effort. The one is professional education, and the other regulation and protection—these both having reference to those now in the ranks, as well as to those who enter hereafter. These are subjects that all State societies should consider and act upon. The Board of Examiners acting for and under the control of this Society, and under the authority of law, is accomplishing much for the profession and the public in this State.

Taking all things into consideration, we regard this as the best and most efficient meeting of the Ohio State Dental Society ever held. T.

CHANGE EDITORIAL.

With the issue of the present number of the DENTAL REGISTER the editorial connection of Dr. WATT ceases. Nevertheless, we hope frequently to have contributions from his pen for its pages. This step has been rendered necessary by his removal from Cincinnati; and, in addition to this, his time is so fully occupied that he does not wish to be held responsible for regular contributions, and he desires to have as much freedom from care and responsibility as possible, that he may have the greater opportunity for recuperation.

The editorial control and management of the REGISTER will be entirely in charge of the former senior editor, to whom all matter and communications for its pages should be addressed.

CLOSE OF THE VOLUME.

This number completes the twenty-fifth volume of the DENTAL REGISTER. A quarter of a century has passed away since its first number was issued, and within that time what a change has taken place, not only in the journal, but in the profession.

The REGISTER was, in the beginning, issued as a quarterly, by Dr. James Taylor, of this city, under the auspices of the Mississippi Valley Dental Society; and then, with its little handful of subscribers, no one entertained very sanguine expectations that it would have more than a brief career; but still, by the persevering effort and energy of its publisher and editor, it lived and became an institution for the profession—for the West especially, and to some extent for the profession of the whole country —and still without assuming to be cosmopolitan. The REGISTER has always been modest.

Fifteen years ago the proprietorship and editorial management of the REGISTER was vested in and devolved upon J. Taft and Geo. Watt. In 1860 the publication of the REGISTER was transferred to John T. Toland, who had it in charge for three years, after which its publication reverted to the present editor and proprietor. It was changed from a quarterly to a monthly in July, 1860, since which time it has been published without interruption as a monthly.

In all these years the aim has been to make the REGISTER subserve the best interests of the profession, and we trust that in the future it may accomplish its mission better than hitherto.

T.

KENTUCKY STATE DENTAL SOCIETY.

It was our good fortune, recently, to attend a meeting of this Society, held at Louisville, Ky. The spirit and energy there manifested were very gratifying, indeed. The principal work before the meeting at that time was the establishment of a dental infirmary in the city of Louisville, the object of which is two-fold, viz.: to afford facilities for general consultation, comparison, and clinics, and to give to the poor the advantages of treatment and operations upon their teeth, which they can not have in the private office. There should be such an institution established and sustained by the profession in every city and large town in the country. The plan decided upon here contemplates the procurement of a person competent to take charge, under the proper committee, of the institution, and keep it open at least a portion of every day for the admission and treatment of patients. The members of the Society will, by appointment, be present for duty at stated periods. The practice of the infirmary may be made, and doubtless will be, very valuable to the junior members of the profession. Regular, systematic infirmary facilities, and clinic practice, outside of the Dental Colleges, in Brooklyn, New York and Louisville: who next?

We are just informed that the infirmary at Louisville is in active operation, as contemplated. T.

H.R.Abbott
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